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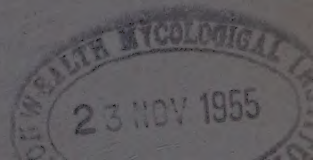
THE VETERINARY BULLETIN

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THE VETERINARY BULLETIN

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[No. 11

DISEASES CAUSED BY BACTERIA AND FUNGI

SURGALLA, M. J., BERGDOLL, M. S. & DACK, G. M. (1954). **Staphylococcal enterotoxin: neutralization by rabbit antiserum.**—*J. Immunol.* **72**, 398-403. **3497**

A quantitative method for assaying enterotoxin, based on a gel diffusion precipitin technique, was used to demonstrate unequivocally that neutralizing antibodies are produced in the sera of immunized rabbits.

—MALCOLM WOODBINE.

DAMUDE, D. F. (1955). **The use of a modified resazurin test for the detection of mastitis on the farm.**—*Canad. J. comp. Med.* **19**, 57-60. **3498**

The "resazurin field test" was applied to milk samples from 1,595 quarters; 87.4% of those samples which had a leucocyte count of 500,000 or more per ml. yielded a positive reaction. When samples showed a leucocyte count of 900,000 or more the agreement was 92%. In the field test, readings were made after one hour and samples were not incubated in a water-bath. A test kit for the use of dairymen was developed.—R. GWATKIN.

I.—PULSFORD, M. F. (1954). **Factors effecting the lysis of erythrocytes treated with staphylococcal β toxin.**—*Aust. J. exp. Biol. med. Sci.* **32**, 347-352. **3499**

II.—PULSFORD, M. F. (1954). **Some factors influencing the production of CAMP factor by *Streptococcus agalactiae*.**—*Ibid.* 353-360. **3500**

I.—Sheep r.b.c. sensitized to staphylococcal β toxin were found to be susceptible to lysis by alterations in pH and salt concentration of the medium. Horse r.b.c. were found to be insensitive to the action of staphylococcal β toxin. P. discussed the impact of these findings upon the tube haemolytic titration of streptococcal "CAMP" factor [see *V.B.* **16**, 1015] and suggested that reliable titrations are obtained by mixing the r.b.c. and β toxin at pH 7 to 7.4 and neutralizing the streptococcal culture before dilutions are prepared.

II.—This is a study of the influence of composition of the medium upon the production of "CAMP" factor [*loc. cit.* *I supra*], the haemolysin produced by *Str. agalactiae*, and active against sheep r.b.c. sensitized to staphylococcal β toxin. The peptone concentration of the medium appears to be important, though the active agent is not nucleic acid as in the case of streptolysin S. A complex effect upon "CAMP" factor production was induced by variation in final pH, and in glucose concentrations of the media. In the more satisfactory media detectable amounts of "CAMP" factor were produced by a number of strains of *Str. agalactiae* previously regarded as negative.

—J. H. WHITTEM.

HELMBOLDT, C. F., JUNGHER, E. L. & PLASTRIDGE, W. N. (1953). **The histopathology of bovine mastitis.**—*Bull. Storrs agric. Exp. Sta.* No. 305. pp. 90. **3501**

An extensive literature review (150 refs.) of the udder changes and specific causes. Details of 520 quarters studied from a brucella-free herd and collected over 20 years show that of 505 examined histologically:—158 were normal; 160 were infected with staphylococci; 43 with *Str. dysgalactiae* and *Str. uberis*; 39 with coliform organisms; 5 with corynebacteria and 54 with *Str. agalactiae*. None yielded evidence of any viral aetiology; infection was presumed to spread by the ducts and the effect of most organisms on the tissues is attributed to exotoxins.—MALCOLM WOODBINE.

WILSON, C. D. (1954). **The present position with regard to bovine mastitis and a review of recent trials of various antibiotics for bovine mastitis.**—*Vet. Rec.* **66**, 775-783. Discussion: pp. 783-788. **3502**

Herd mastitis resulting from *Str. agalactiae* infection can be cured by penicillin, but the increasing susceptibility of the cow and the increase in cases due to other organisms show

that eradication and prophylaxis rather than treatment should be concentrated on. Penicillin is still superior to other antibiotics.

A lengthy discussion followed the paper.

—A. SEAMAN.

RICHOU, R. & THIEULIN, G. (1955). Sur la prévention et le traitement des mammites.

[Prevention and treatment of bovine mastitis.]

—*Rec. Méd. vét.* **131**, 73-85. **3503**

Stress is laid upon the disadvantage of chemotherapy. The use of a mixed vaccine is recommended, supplemented by antibiotics for treatment.—A. SEAMAN.

FELTON, L. D., PRESCOTT, B., KAUFFMANN, G. & OTTINGER, B. (1955). Antigens of vegetable origin active in pneumococcus infections.—

J. Bact. **69**, 519-528. **3504**

Hemicelluloses isolated from plants (mostly edible vegetables) were found to be antigenic protecting mice against virulent strains of types I, II and III of *Diplococcus pneumoniae* in mice. In most cases immunity against type II predominated, but it was polyvalent for 2 or even all 3 types in many cases.

—T. E. GATT RUTTER.

MORTELMANS, J. & VERCRUYSE, J. (1954). Studies over miltvuur in Belgisch Kongo en Ruanda-Urundi. I. Vaccinatie met een door merthiolate gestabiliseerde sporevaccinbereiding. [Anthrax vaccines in the Belgian Congo.]—*Vlaam. diergeneesk. Tijdschr.* **23**, 233-255. [In Flemish. English, French and German summaries.] **3505**

A sporulated anthrax vaccine is used that is prepared from agar cultures, treated with alum and preserved with thiomersal (merthiolate). The subcutaneous doses are: cattle 0.5 ml., sheep, goats, horses and pigs 0.25 ml. The authors discussed the difficulties of vaccination in the tropics and problems associated with the preparation of the vaccine.—C. A. VAN DORSSEN.

A sporulated anthrax vaccine is used that is prepared from agar cultures, treated with alum and preserved with thiomersal (merthiolate). The subcutaneous doses are: cattle 0.5 ml., sheep, goats, horses and pigs 0.25 ml. The authors discussed the difficulties of vaccination in the tropics and problems associated with the preparation of the vaccine.—C. A. VAN DORSSEN.

KOLESOV, S. G. & GRACHEV, V. N. (1955).

[Method of obtaining active precipitating serum against anthrax and its practical application.]—*Veterinariya, Moscow.* **32**, No. 5, pp. 82-85. [In Russian.] **3506**

The new method described involves the use of a living culture of weak virulence but high immunogenic property for the hyperimmunization of horses, instead of the usual formol-killed suspension. The method was first worked out on rabbits. The reaction of the horses is less pronounced than with the formol antigen. To date, 232 horses have thus been

hyperimmunized without loss and all have produced highly active and highly specific antisera. The time needed for immunization is half that required with the formol antigen. Horses that failed to give a good antiserum after immunization by the old method were transferred to immunization with the live vaccine with very good results. The sera so obtained could still be used for precipitation tests after two years' storage. The sera have now been used on a large scale and no non-specific reactions have been reported. [No details of the course of hyperimmunization are given.]—A. MAYR-HARTING.

EGGERT, O.-K. (1954). Der augenblickliche Stand der Rindertuberkulose und ihre veterinären Bekämpfungsmassnahmen. [Incidence of TB. in cattle in Germany and veterinary control measures.]—*Berl. Münch. tierärztl. Wschr.* **67**, 55-59. [English summary.] **3507**

TB. in cattle has spread to such an extent in Germany that 30-50% of all cattle and 60-70% of all older cows are affected. The author discussed control measures.—W. G. SILLER.

PLUM, N. (1954). Sur la lutte contre la tuberculose. [Control of bovine TB.]—*Bull. Off. int. Epiz.* **42**, May, pp. 297-303. [English summary.] **3508**

A comparative survey of the control of TB. in cattle, written with the idea of stimulating other countries to follow Denmark's lead in eradicating the disease, using the single comparative tuberculin test.—R. G. MARES.

MESSERLI, W. (1954). Untersuchungen über Vorkommen, Ursachen und Erkennung von unspezifischen Tuberkulinreaktionen beim Rind. [Occurrence, causes, and recognition of non-specific tuberculin reactions in cattle.]—*Schweiz. Arch. Tierheilk.* **96**, 287-312. [English, French and Italian summaries.] **3509**

In the course of tuberculin tests on 1,835 cattle, 167 yielded a non-specific reaction. M. suggested that doubtful reactions can best be clarified by the use of the subcutaneous test, the comparative test using mammalian and avian types of tuberculin, or by further repeated intradermal tuberculin tests.—W. G. SILLER.

VAN WAVEREN, G. M. (1954). Tuberculine et tuberculation. Le contrôle de la tuberculose bovine avec les tuberculines P.P.D. [Use of P.P.D. tuberculin in the control of bovine TB.]—*Bull. Off. int. Epiz.* **42**, May, pp. 304-320. [English summary.] **3510**

Since 1948 the State Serum Institute at

Rotterdam has carried out experiments in the course of routine tuberculin testing of cattle. The use of bovine type P.P.D. tuberculin, alone, was the quickest way of eradicating infection, but once the majority of reactors had been eliminated the comparative test as used in Great Britain gave better results.—R. G. MARES.

KUTTLER, K. L. (1955). **An investigation of hemagglutination techniques as applied to the diagnosis of bovine tuberculosis.**—*Thesis, Cornell*. pp. 67. **3511**

Various methods and techniques have been tried in order to adapt the Middlebrook-Dubos haemagglutination and the Middlebrook haemolytic-modification test to the problems connected with the diagnosis of TB. in cattle ; especially those concerned with the "no visible lesion" reactor. K. believes the test may develop into an aid in the diagnosis of TB. in problem herds which show repeated tuberculin reactions and lack of lesions. He also believes that a positive serological test is highly indicative of TB. and the presence of lesions and that the test may be useful as a herd test in confirming infection where doubts exist concerning the reliability of a tuberculin reaction, and thereby eliminate the necessity of resorting to slaughter.

H. L. GILMAN.

SCHMID, G. (1954). Untersuchungen über die Verwendbarkeit des Hämolyse-Tests nach Middlebrook zur Diagnose der Eutertuberkulose. [Application of the Middlebrook haemolysis test to the diagnosis of TB. of the udder.]—*Schweiz. Arch. Tierheilk.* **96**, 51-56. [English, French and Italian summaries.] **3512**

Middlebrook's haemolysis test for TB. was used on 750 milk samples. None of the 56 tuberculous samples showed a titre below 1:40. In 98% of the 603 non-tuberculous milk samples the titre was never higher than 1:20. Mastitis does not interfere with the test.—W. G. SILLER.

HARTWIGK, H., WEINHOLD, E. & POLTH, H. (1955). Die Bedeutung der Hämagglutination nach Middlebrook und Dubos und Hämolysereaktion nach Middlebrook für die serologische Diagnostik der Eutertuberkulose beim Rind. [The Middlebrook-Dubos haemagglutination test and the haemolysis reaction described by Middlebrook in the serological diagnosis of TB. of the udder in cows.]—*Rindertuberkulose*. **4**, 99-108. **3513**

Quarter milk samples from 210 cows sent for slaughter were submitted to the haemagglutination test and the haemolysis test, both tests

being carried out on whey, and the results compared with the P.M. findings. In tubercle-free cows, both tests gave a very high percentage of negative results, even in cows affected with other diseases of the udder. Although both tests gave positive results (i.e., titres of 1:32 or more) in all samples from tuberculous udders, a positive result was not diagnostic of tuberculous mastitis since it was given by a considerable proportion of cows affected with TB. of other organs. Most samples were submitted also to the complement-fixation test, which was found to be less satisfactory on account of lower sensitivity and the occurrence of doubtful reactions.—ANNIE LITTLEJOHN.

BADIALI, L. (1954). L'idrazide dell'acido isonicotinico nella tubercolosi bovina, esperimento di profilassi. [*Iso-nicotinic acid hydrazide in prevention of bovine TB.*]—*Vet. ital.* **5**, 7-18. [English, French and German summaries.] **3514**

Iso-nicotinic acid hydrazide injected daily s/c in a dose of 4 mg. to a limited number of calves in contact with a tuberculous calf for 60 days appeared to protect them from infection whereas untreated controls became infected. Results were sufficiently encouraging to justify large-scale tests on the use of this drug, particularly for the protection of contacts in areas where the slaughter policy is carried out.

—I. W. JENNINGS.

VAN DEINSE, F. & SENECHAL, F. (1954). Le BCG est-il virulent pour le hamster doré de Syrie? [Is B.C.G. vaccine virulent for hamsters?]—*Ann. Inst. Pasteur.* **87**, 117-130. **3515**

Most hamsters given an i/p inj. of living or dead B.C.G. vaccine died within a month. The same phenomenon occurred when large doses of purified tuberculin were inoculated. Hamsters appeared to be susceptible to the metabolic or break-down products of B.C.G. organisms. B.C.G. is not more virulent for hamsters than for g. pigs.—M. B. HAWKSLEY.

MACLENNAN, I. S. (1953). **Melioidosis in the horse. A case history showing that this disease gives a positive reaction to the mallein test.**—*J. R. Army vet. Cps.* **24**, 130-134. **3516**

A polo pony was tested with mallein in July 1952 on arrival in the Canal Zone, Egypt, after purchase in Cairo and gave a positive reaction to the intradermal-palpebral test. All contact horses were subsequently tested and proved to be negative.

The pony was isolated and subsequently

retested on two occasions by the subcutaneous test and reacted positively. Later a complement-fixation test made in England using a sample of serum was positive for glanders. This positive c.f. reaction was thought to be possibly a result of the recent injection of the pony with mallein. A second c.f. test made after an interval of four months was negative for glanders but an intradermal-palpebral test made a day later was positive.

A few months later two further intradermal-palpebral mallein tests were both negative.

Three months later serum samples were examined by the c.f. test for both glanders and melioidosis. The test for glanders was negative and that for melioidosis positive.

A firm swelling in the submaxillary gland developed in July 1953, burst after a few days and healed rapidly. Pus from the abscess was sent to England for examination but no pathogenic organisms were isolated either in cultures or by inoculation of g. pigs. This failure was possibly because the pus had been eight days in transit before examination.

At no time did the horse have any clinical signs of glanders.

It was destroyed in July 1953. The lesions found were some scarring of the septum nasi and epiglottis, a small calcified nodule in the liver, two similar nodules in the mesenteric lymph nodes and a "soft white lesion" about the size of a lentil in the left ventricle. These lesions were sent to England and examined. In culture a Gram-negative bacillus with characteristics resembling those of *Pfeifferella whitmori* from one of the lymph node lesions was isolated. Two g. pigs inoculated [presumably intraperitoneally] with material from the lesions developed orchitis and on P.M. examination a generalized peritonitis was found Gram-negative bacilli resembling *Pf. whitmori* were isolated from the g. pigs. The microscopic appearance of the lesions is described: they were capsulated and caseous.

MacL. discussed the rather confusing literature dealing with the reactions to c.f. tests and to skin tests with mallein and whitmorin in cases of glanders and of melioidosis. He concludes that the pony was a case of melioidosis.

[This would appear to be the first case of melioidosis in a horse recorded outside Malaya. Unfortunately the history of this pony prior to its purchase in Cairo is not stated. The cultural characteristics of *Pf. whitmori* are not unlike those of *Pf. mallei*. A very important difference is the much faster rate of growth of *Pf. whitmori*. Unfortunately, MacL. does not give any information on the rate of growth of his organism. It

is stated that no cases of glanders have been recorded in Cairo for 20 years. The Egyptian veterinary authorities reported that they had tested with mallein all horses which had been in contact with the polo-pony prior to its purchase; none had given a positive reaction.]

DICKINSON, E. M., JERSTAD, A. C., ADLER, H. E., COOPER, M., BABCOCK, W. E., JOHNS, E. E. & BOTTORFF, C. A. (1954). The use of an *Erysipelothrix rhusiopathiae* bacterin for the control of erysipelas in turkeys.—*Proc. 90th Ann. Meet. Amer. vet. med. Ass. Toronto*. July 20-23, 1953. pp. 370-375. **3517**

Turkeys of various ages were inoculated with an aluminium hydroxide adsorbed, formolized whole culture *E. rhusiopathiae* vaccine. When challenged by the i/v injection of culture the immunized groups showed a mortality of 23 to 73% as against 81 to 98% in the uninoculated control groups.—E. A. GIBSON.

JERSTAD, A. C. & JOHNS, E. E. (1954). Field trials of a bacterin for the control of erysipelas in turkeys.—*J. Amer. vet. med. Ass.* **125**, 288-291. **3518**

In preliminary field trials of an *E. rhusiopathiae* killed culture vaccine in three large flocks of turkeys on farms where losses from *E. rhusiopathiae* infection had occurred, the mortality from the infection and the total losses were lower in birds that had been vaccinated with a killed culture of the organism (2 ml. injected i/m) than in unvaccinated controls. From their findings and from those of Dickinson *et al.* [see preceding abst.] the authors concluded that the vaccine may safely be used for the control of the infection in turkeys.—F.E.W.

KAINRATH, W. & STÖCKL, W. (1954). Papier-elektrophoretische Untersuchungen des Schweineserums unter physiologischen Bedingungen und nach Verimpfung von Rotlaufantigenen. [Paper electrophoresis of serum from healthy pigs and from pigs experimentally injected with swine erysipelas antigen].—*Wien. tierärztl. Mschr.* **41**, 140-151. [English, French and Italian summaries.] **3519**

By paper electrophoresis of serum some indication of the immunogenic activity of a vaccine can be obtained, the activity being indicated by an increase in γ -globulins. Following injection of immune serum there was no increase in γ -globulins although the pigs were later proved to be immune.—H. BEHRENS.

HAMILTON, C. M. (1954). N,N'-dibenzylethylenediamine dipenicillin G in turkey erysipelas.—*Poult. Sci.* **33**, 629-632. **3520**

H. stated that penicillin was demonstrable in the blood serum of turkeys 96 hours after a single i/m injection of N,N'-dibenzylethylenediamine dipenicillin G, (DBED), and that turkeys were protected for a similar period against challenge by the i/v inoculation of a culture of *E. rhusiopathiae*. He suggested that DBED would be useful in preventing the spread of *E. rhusiopathiae* infection within a flock.—E. A. GIBSON.

JUSLIN, K.-E. & STENBERG, H. (1954). Några jämförande försök mellan *Erysipelothrix rhusiopathiae* och *Listeria monocytogenes* isolerade från höns i Finland. [Comparison of strains of *Erysipelothrix rhusiopathiae* and of *E. monocytogenes* isolated from fowls.]—*Nord VetMed.* 6, 457-468. [In Swedish. English and German summaries.] 3521

Strains of *E. rhusiopathiae* isolated from fowls in Finland were similar in their cultural and biological properties to porcine strains. The authors discussed the differentiation of *E. rhusiopathiae* and *E. monocytogenes* with reference to cultural characteristics and pathogenicity for fowls and laboratory animals.

—I. MARTINI.

CRAY, M. L., SINGH, C. & THORP, F., Jr. (1955). Abortion, stillbirth, early death of young in rabbits by *Listeria monocytogenes*. I. Ocular instillation. II. Oral exposure.—*Proc. Soc. exp. Biol., N.Y.* 89, 163-169 & 169-175. [Authors' summaries modified.] 3522

I.—Ocular instillation of *Erysipelothrix (Listeria) monocytogenes* into rabbits, 2 weeks pregnant, caused abortion, indicating that the resulting conjunctivitis is not a local reaction as previously supposed. When *E. monocytogenes* was instilled 4 days or less before termination of pregnancy, the young were either stillborn or died from septicaemia due to the organism within their first week. Two rabbits re-bred one week after delivering full term litters which died from septicaemia aborted spontaneously during the 3rd week of gestation and *E. monocytogenes* was isolated from all the aborted foetuses and membranes. Does re-bred 17 days or more after abortion usually gave birth to normal full term litters. Two of 3 does re-exposed during the 2nd gestation died. Oblique lighting and a scanning microscope provided an excellent technique for identifying colonies of *E. monocytogenes* in cultures made directly from grossly contaminated material.

II.—When suspensions of *E. monocytogenes* were added to the drinking water of 6 rabbits

at the end of 2 weeks of gestation, 2 aborted and survived; 3 aborted and died; and one died before abortion. When exposure occurred 5 days or less *pre-partum*, the young developed an intra-uterine infection which resulted in either stillbirth or death within the first 5 days of life. Seven of 9 infected does re-bred 11 to 27 days *post-partum* gave birth to normal litters. Non-pregnant female and male rabbits remained healthy after a similar exposure.

LUCAS, A., BOULEY, G., QUINCHON, C., FEUGEAS, C., GOURDON, J., GOURDON, R. & TOUCAS, L. (1955). Etude sur la listériose et *Listeria monocytogenes* dans quelques espèces animales. [*Erysipelothrix (Listeria) monocytogenes* infection in animals, with special reference to sheep, rabbits and fowls.]—*Rec. Méd. vét.* 131, 151-170. 3523

An account of the bacteriological characteristics of the organism, agreeing with the findings of previous authors, followed by a general account and detailed case reports on the course of the infection in the 3 hosts. Chloramphenicol and streptomycin were the most effective antibiotics *in vitro*.—A. SEAMAN.

OSEBOLD, J. W. & INOUE, T. (1954). Pathogenesis of *Listeria monocytogenes* infections in natural hosts. I. Rabbit studies. II. Sheep studies.—*J. infect. Dis.* 95, 52-66 & 67-78. [Authors' summaries modified.] 3524

I.—The authors set up *Erysipelothrix (Listeria) monocytogenes* infection in rabbits by instillation of varied numbers of the organisms on to the nasal mucosa, vagina, conjunctiva or into the gastro-intestinal tract. The outcome of the types of illness produced ranged from acute fatal infections to complete recoveries, with a percentage of animals persisting as latently infected carriers.

In 9 rabbits infection of the structures of the cranial cavity developed.

The authors presented evidence suggesting that rabbits might serve as reservoirs for this infection. Out of 45 infected rabbits *E. monocytogenes* was found in the nasal mucosae of 8, the pharynx in 15, the liver in 14, the intestinal contents of 9, the urine of 5 and the genital tract in 5.

There was failure to isolate the organism in culture.

II.—Infection followed instillation of *E. monocytogenes* on to the nasal mucosa, the vagina or into the gastro-intestinal tract of sheep.

The organisms were recovered from the brain in 2 out of 16 sheep.

They were cultured from the tissues of 5 sheep slaughtered 6-15 days after exposure, but not from 4 slaughtered 16-29 days after exposure.

A variety of tissues failed to reveal the organism on original culturing. Of 19 positive tissues, 18 were positive only after reculture following a holding period.

SINHA, K. C. & MEHTA, H. S. (1953). Studies on pasteurellosis. I. Rabbit septicaemia due to *Pasteurella*-like organisms.—*Indian vet. J.* **30**, 216-223. **3525**

Observations were made on clinical, P.M. and histopathological aspects of a naturally occurring disease resembling pasteurella infection in a stock of rabbits. Mortality was high in winter and in the rainy season. Seven of the eight strains isolated failed to form indole. Vaccines prepared with these rabbit strains were ineffective.—R. N. MOHAN.

MIKLOVICH, M. & PELLERDY, L. (1955). Vizsgálatok az olajos ultraseptylszuspenzió baromficholera elleni hatásáról. [Use of sulphamethylthiazole in fowl cholera].—*Mag. állator. Lapja.* **10**, 50-53. [English and Russian summaries.] **3526**

Fowls and pigeons were protected from a lethal dose of *Past. septica* by the s/c injection of 0.5 g. per kg. body wt. of sulphamethylthiazole in oily suspension. An effective conc. of the drug persisted in the serum for 4-5 days after injection. Mice were similarly protected by a dose of 1 g. per kg. body wt.—R.M.

DICKSON, R. S. (1955). Neomycin sulfate in Arizona paracolon infection of calves.—*Vet. Med.* **50**, 143-144. **3527**

Neomycin sulphate in initial and daily dosage of 0.5 g. for 2 days successfully controlled a serious outbreak in a group of 20 Hereford calves of infectious enteritis apparently due to the Arizona type of paracolon bacillus. Three animals succumbed, but all treated animals rapidly recovered.—A. ACKROYD.

DEVOS, A. (1954). Maladies infectieuses des jeunes veaux. [Infectious diseases of calves.]—*Ann. méd. vét.* **98**, 228-246. **3528**

A general discussion on the infectious bacterial diseases of calves, mainly from a clinical viewpoint. No new experimental work is reported.—M. B. HAWKSLEY.

ZIMMER, K. L. (1954). Über einen Fund von *Salmonella abortus bovis* beim Schwein (Ferkel). [Isolation of *S. abortus-bovis* from piglets.]—*Tierärztl. Umsch.* **9**, 52-53. **3529**
S. abortus-bovis was isolated from a piglet,

4 weeks old, which had died suddenly after paralysis of the hind quarters. In nine other litters 10 piglets died in similar circumstances.—H. BEHRENS.

KAPP, P. (1954). Pathohistologische Veränderungen in der Schweineleber bei Paratyphus, verursacht durch *B. suispestifer* Kunzendorf und *B. suispestifer* Voldagsen. [Pathological changes in the liver of pigs infected with *Salmonella cholerae-suis* or *S. typhi-suis*.]—*Acta vet. hung.* **4**, 193-204. [In German. Russian summary.] **3530**

The microscopic lesions in pigs affected with necrotic enteritis caused by *S. typhi-suis* were predominantly productive and chronic in character. Mononuclear cell infiltration and fibroblast proliferation in the interlobular connective tissue were more localized than in the lesions in pigs with septicaemia caused by *S. cholerae-suis*.—W. G. SILLER.

PITAL, A., STAFSETH, H. J. & LUCAS, E. H. (1954). An experimental study on the control of pullorum disease.—*Poult. Sci.* **33**, 134-139. [Abst. from authors' summary.] **3531**

In *in vitro* tests *S. pullorum* is sensitive to low concentrations of aureomycin and chloramphenicol and to moderately low concentrations of penicillin. The latter appears to exert a slow bactericidal action, while aureomycin and chloramphenicol appear to be bacteriostatic. The use of proper concentrations of cobalt greatly enhanced the antibacterial action of penicillin both *in vitro* and *in vivo*.

Aureomycin and chloramphenicol were effective in reducing chick mortality resulting from artificial infection with *S. pullorum*. Penicillin reduced mortality only at relatively high concentration levels. A decided reduction in penicillin levels may eventually be realized by the combined use of cobalt and penicillin.

All treated birds were given antibiotics for varying periods before infection as well as for the duration of the experimental period after inoculation.

PAPPARELLA V. (1954). Influenza della vitamina B₁₂ sulla produzione di agglutinine anti-pullorum nel coniglio. [Effect of vitamin B₁₂ on the production of agglutinins against *S. pullorum* in rabbits.]—*Zooprofilassi.* **9**, 553-563. **3532**

The i/m inj. of vitamin B₁₂ into rabbits stimulates a marked rise in the production of antibodies to *S. pullorum*, when given simultaneously with the bacterial suspension, for up to 30 days. Daily doses of the vitamin in the

initial period of immunization are not as effective in raising antibody titre as daily injections given when the immunization process is well advanced.—I. W. JENNINGS.

VIRAT, B., VALLEE, A. & JACOTOT, H. (1955). Au sujet des différents types de salmonelles avaires. [*Salmonella infections in fowls.*]—*Ann. Inst. Pasteur.* **88**, 133-136. **3533**

The authors examined 196 strains of *S. pullorum* and *S. gallinarum* at intervals for fermentation of dulcitol, maltose, xylose, and rhamnose. The strains were biochemically unstable and no subdivision of types was considered justifiable from the fermentation reactions.—A. SEAMAN.

CAVRINI, C. & CERE, C. (1954). Saggi di terapia antibiotica e sulfamidica in pulcini sperimentalmente infettati con *Salmonella gallinarum*. [*Antibiotics and sulphonamides in treatment of fowl typhoid.*]—*Vet. ital.* **5**, 691-703. [English, French and German summaries.] **3534**

Chloramphenicol had a favourable effect on body weight of fowls infected with *S. gallinarum*, sulphaquinoxaline a slightly unfavourable one. Both drugs produced limited decrease in mortality. There was no change in fermentation activity in the infecting strains, nor in their resistance to chloramphenicol.—F. R. PAULSEN.

ANON. (1954). *Salmonellosis in Jamaica. Symposium at the University College of the West Indies. February 10th 1954.*—*West Ind. med. J.* **3**, 108-136. **3535**

Salmonella infections are widely prevalent in Jamaica, especially in infants and young children. *S. typhi-murium* is the most common cause of food poisoning in Jamaica. The animal reservoirs of salmonella infections include pigs, poultry and cockroaches. Ducks' eggs have not been incriminated in Jamaica. —W. R. BETT.

JACOTOT, H. & VALLEE, A. (1954). Remarquable affinité pour l'épiploon d'une souche de *Brucella abortus*. [*A strain of Brucella abortus with a marked affinity for the omentum.*]—*Ann. Inst. Pasteur.* **86**, 515-518. **3536**

A strain of *Br. abortus* isolated from the milk of an infected cow was highly pathogenic for rabbits and g. pigs, the i/p injection of material containing it (milk, suspension of pus, spleen or glandular tissue) causing severe purulent peritonitis.—T. E. GATT RUTTER.

SCHWARZ, H. (1954). Verwerfen beim Hund infolge Abortus Bang. [*Brucella abortus infection in a bitch.*]—*Mh. VetMed.* **9**, 152-154. **3537**

After consuming infected portions of an aborted calf, a bitch aborted three foetuses at 54-56 days of pregnancy and showed a positive titre to *Br. abortus*, which lasted 9 months. The next pregnancy was normal and the bitch gave birth to 4 puppies.—W. H. SILLER.

SEELEMANN, M. & BÖRGER, K. (1954). Versuche über die Abortus-Bang-Ringprobe unter Verwendung verschiedener Teste. [*Experiments on the Br. abortus ring test, using various techniques.*]—*Mh. Tierheilk.* **6**, 201-211. **3538**

The technique of Fleischhauer & Hermann gives excellent results, but it is somewhat complicated and requires experience and care. Bruhn's haematoxylin technique and Bendtsen's tetrazolium test are not recommended. Wood's technique, using tetrazol-purple in place of haematoxylin is as reliable as, but simpler than, the old German test. The *Br. abortus* ring test, slow agglutination, and Sachweh's reaction are compared.—W. R. BETT.

WEGENER, K. H. & UHLMANN, W. (1954). Zum Nachweis von Brucella-Agglutininen in Blutseren durch die ABR-Probe. [*Demonstration of brucella agglutinins in serum by the Br. abortus ring test.*]—*Dtsch. tierärztl. Wschr.* **61**, 424-427. **3539**

The authors compared the results of the tube agglutination test, the flocculation test and the serum ring test for *Br. abortus* on 3,177 blood samples from cattle. They concluded that the serum ring test is adequate for the detection of positive and negative cases. In doubtful cases other serological tests should be employed to check the results.—W. G. SILLER.

TALLMAN, K. L. & HERMAN, H. A. (1954). Adaptations and limitations of ring test for bovine brucellosis.—*Res. Bull. Mo. agric. Exp. Sta.* No. 546, pp. 44. [Abst. from authors' summary.] **3540**

Non-specific ring test reactions in milk brought about by ageing under refrigeration, freezing, or by the use of certain antigen preparations can be largely overcome by heat treatment of samples before testing. Such heat treatment will not appreciably alter the specificity of the test for positive samples.

The ring test can be modified to detect agglutinins in blood and in semen.

Whole milk dilution of samples is preferable for ring testing of samples from individual cows.

However, physiological saline can be substituted except in some samples in which the cream fails to rise adequately.

Mastitis and the pH of the sample have little or no effect upon the specificity of the ring test. Certain dissolved salts in milk will bring about non-specific reactions.

The majority of milk samples from adult vaccinated cows will give a positive reaction to the test.

ORTENZI, R. & VALENTE, A. (1954). Ricerche sperimentali sul comportamento della ring-test in bovine primipare vaccinate con Buck 19. [**Behaviour of the ring test in cattle vaccinated with Strain 19 *Br. abortus*.**—*Nuova Vet.* 30, 423-426. [English and French summaries.] 3541

Twenty-nine cows, in two groups, were vaccinated with *Br. abortus* Strain 19. The first group comprised cattle aged 7-18 months at vaccination (single injection) and the second group involved animals aged 6-10 months at the first injection and re-vaccinated within the first month of pregnancy. Both groups gave negative reactions to the ring test for two months starting from a week after parturition.

—I. W. JENNINGS.

MANTOVANI, G., MAGLIONE, E. & RAGNI, M. (1954). Sulla trasmissione di agglutinine anti-brucella da vacche vaccinate col Buck 19 ai propri vitelli. [**Transmission of brucella antibodies from cows to their calves, following immunization with Strain 19.**—*Zooprofilassi.* 9, 815-828. [English, French and German summaries.] 3542

Calves born to cows vaccinated against *Br. abortus* infection with Strain 19 gave a positive reaction to the agglutination test in 81.35% of cases. The antibodies were transferred via the colostrum and persisted for 4-20 days.—I. W. JENNINGS.

ANON. (1955). La diffusione della brucellosi in Italia. [**Incidence of brucella infection in Italy.**—*Zooprofilassi.* 10, 45-49. 3543

An account of a statistical examination of the incidence in human beings, showing an overall increase between 1925 and 1952, the geographical distribution and the age and seasonal incidence. There was a steady increase between the ages of 10 and 20 years and incidence reached its highest between the ages of 20 and 30 years with a decrease in older persons. The bulk of infection occurred in the 20-50 age group. The period April-July inclusive showed the highest incidence (approx. 60%), May being usually the peak month.—T. E. GATT RUTTER.

RENOUX, G. & CORDIER, G. (1953). Enquêtes épidémiologiques sur les brucelloses en Tunisie. Premiers résultats. [**Epidemiological investigation into brucellosis in Tunisia. Preliminary results.**—*Ann. Serv. Prod. Anim., Tunis.* 1, pp. 57-60. [Mimeographed.] 3544

Evidence of *Brucella* infection was found to be widespread in Tunisia in both the human and animal populations, as determined by serological methods, and in a few instances by culture of the organism.—M. B. HAWKSLEY.

PALTRINIERI, S. (1955). La brucellosi come malattia professionale. [**Brucellosis as an occupational disease of veterinary surgeons.**—*Zooprofilassi.* 10, 19-26. 3545

P. discussed the risks of brucellosis in farm workers and in veterinarians in Italy. In the former, infection contracted while at work is regarded as an "accident at work" and compensation is paid accordingly. There is, however, no provision for veterinarians in public service who are constantly exposed to infection and he considered that arrangements should be made for insurance against brucellosis and other diseases transmissible from animals to man.—T. E. GATT RUTTER.

MALDONADO ALVAREZ, C. (1954). Infección brucelósica en el personal de faenas del Matadero Municipal de Santiago. [**Brucella infection amongst the personnel of the municipal abattoir at Santiago, Chile.**—*Zoootria, Chile.* 3, No. 12, pp. 3-20. 3546

Of 556 workers in the Municipal Abattoir of Santiago examined for brucella agglutinins, 43 gave positive reactions. Only two of these showed clinical signs of infection. Workers dealing with pigs were less often affected than those dealing with cattle, and of these latter, the men handling intestines were most often affected.

—I. W. JENNINGS.

BORZENKOV, D. S. (1955). [**Immunization of sheep against brucellosis with *Br. suis* Strain 61.**—*Veterinariya, Moscow.* 32, No. 5, pp. 29-32. [In Russian.] 3547

Strain 61 is a smooth, weakly virulent culture of *Br. suis*. It does not cause abortion if injected into pregnant sheep, nor can it be recovered from the vagina after parturition. When inoculated in doses of 0.5, 500 and 2,000 millions it confers a good immunity against challenge with a virulent strain. Better results are obtained after i/d, than after s/c injection. An increase in agglutination titre and in complement fixation occur by the 7th day after vaccination, but do not persist for long. The

opsonic index becomes high at about the same time, but persists and is possibly a truer criterion of immunity. Cytological study of the local exudate after vaccination reveals macrophages and active phagocytosis.—A. MAYR-HARTING.

PALTRINIERI, S. (1954). Antibioterapia ed autosterilizzazione spontanea nella brucellosi sperimentale della pecora. [Experimental *Br. melitensis* infection in sheep. Natural recovery and treatment with chloramphenicol.] —*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo*, 1953. 7, pp. 802-808. [English and French summaries.] 3548

Bacteriological tests and the inoculation of g. pigs showed that in sheep experimentally infected with *Br. melitensis* autosterilization of the blood is complete 4 months after abortion or premature lambing. However, agglutination and allergic tests continued to yield a positive reaction both in untreated control subjects and in sheep treated with chloramphenicol.

—I. MARTINI.

RENOUX, G. (1954). Anticorps bloquant dans le sérum de sujets brucelliques. V. Importance pour le diagnostic de la brucellose caprine. [Blocking antibodies and their importance in diagnosis of brucellosis in goats.] —*Ann. Inst. Pasteur*. 86, 232-235. 3549

R. studied the role of blocking antibodies in the diagnosis of brucella infection in goats. He ascribed to this phenomenon the irregularities often found in the tube agglutination test with goat serum.—J.D.

HERZBERG, M. & ELBERG, S. S. (1955). Immunization against brucella infection. III. Response of mice and guinea pigs to injection of viable and nonviable suspensions of a streptomycin-dependent mutant of *Brucella melitensis*.—*J. Bact.* 69, 432-435. 3550

No difference was noticed between the protection conferred on mice and g. pigs by the injection of living organisms and organisms killed by various methods, of a streptomycin-dependent mutant of *Br. melitensis*.

Living organisms of a non-dependent streptomycin "reversion" clone were cleared more rapidly from the tissues of mice and g. pigs than a virulent strain of *Br. melitensis*. The animals inoculated with the former strain had some degree of protection to challenge with a virulent strain.—M. B. HAWKSLEY.

NEGRI, R. & VON LORCH, L. (1955). Tipizzazione delle brucelle mediante il dietilditio-

carbamato di sodio (DEDTC) secondo una nuova metodica. [Typing of brucella using sodium diethyl-dithiocarbamate.] —*Zooprofilassi*. 10, 3-16. [English, French and German summaries.] 3551

Using a carrot - liver medium and a modification of the technique described by Renoux with sodium diethyl-dithiocarbamate the authors succeeded in typing 56 out of 61 strains of *Brucella*. They considered that their method was simple, rapid and easy to interpret, giving definite typical reactions.—T. E. GATT RUTTER.

HOAG, W. G. & BELL, W. B. (1954). Bovine leptospiral meningitis.—*J. Amer. vet. med. Ass.* 124, 379-380. [Abst. from authors' summary.] 3552

A naturally occurring case of bovine leptospiral meningitis is reported; serological evidence of infection with *Leptospira pomona* was obtained. Clinical signs were fever, stiffness of gait, bilateral conjunctivitis, excessive salivation, anxious facial expression and drawn-back ears.

KEMENES, F. (1955). A szarvasmarhaleptospirosis újabb esetei hazánkban. [Leptospirosis of cattle in Hungary.] —*Mag. állator. Lapja*. 10, 148-153. [English and Russian summaries.] 3553

Since bovine leptospirosis was first recorded in Hungary by Kelen [*V.B.* 23, 1838], the disease has been observed both east and west of the Danube, mainly in unweaned calves and in calves 5-9 months old. Four strains of leptospira isolated have not yet been identified; they were unrelated to *L. grippo-typhosa* and *L. pomona*.—R.M.

CORDIER, G. (1953). Leptospirose bovine en Tunisie. [Leptospirosis in cattle in Tunisia.] —*Ann. Serv. Prod. Anim., Tunis*. 1, pp. 83-91. [Mimeographed.] 3554

Leptospira were believed to be associated with disease in cattle, on serological evidence. High titres to *L. bovis* and *L. grippo-typhosa* were common.—M. B. HAWKSLEY.

GAYOT, G. (1953). A propos de l'isolement de souches de leptospirose bovine. [Strains of leptospira isolated from cattle.] —*Ann. Serv. Prod. Anim., Tunis*. 1, pp. 97-108. [Mimeographed.] 3555

Strains of *Leptospira* isolated from cattle produced a septicaemia in g. pigs and young rabbits, with or without a fever. Serological examination is not reported.—M. B. HAWKSLEY.

NEWMAN, J. P. (1954). Bovine leptospirosis in Michigan. A preliminary report.—*Mich. St. Coll. Vet.* **14**, 74-76. **3556**

A preliminary survey of leptospira infection of cattle in the State of Michigan revealed that the infection is well established. Abortion was the main symptom. About a quarter of the suspected animals proved to be reactors to the agglutination test.—W. S. MARSHALL.

WATANABE, M., IWATA, A., HIROTA, E., SUZUKI, Y., MIFUNE, R., YAMANOUCHI, R., ASHIDA, K., INUI, S., OHCHI, T. & YAMAMOTO, S. (1953). Studies on bovine leptospirosis in Japan. Etiological study on the so-called bovine hemoglobinuria. I. Clinical findings and isolation of the etiological agent.—*Exp. Rep. Govt. exp. Sta. anim. Hyg., Tokyo*. No. 26. 103-134. [In English.] **3557**

Bovine haemoglobinuria, the cause of which is not clearly determined, has been observed in Japan since about 1900, with symptoms of marked anaemia, increased leucocyte count, marked nuclear shift to the left of neutrophiles, monocytosis, and icterus of visible mucous membranes. Serologically 3 types of leptospira were demonstrable and 2 strains of *L. hebdomadis* were isolated on Korthof's medium from the kidney.

—KOGI SAITO.

CORDIER, G. & HAROUNI, B. (1954). L'ovo-culture appliquée à l'isolement des leptospires dans la leptospirose bovine. [Culture of leptospira from cattle on the chick embryo.]—*Ann. Inst. Pasteur.* **86**, 523-526. **3558**

Leptospira were isolated from urine of infected cattle by culture on chick embryo. The susceptibility of embryos varied and the optimum time for harvesting cultures could not be established.—T. E. GATT RUTTER.

TVORIC, S. (1953). Prilog pitanju dejstva penicilina i streptomcina na *Clostridium oedematiens* (Weinberg & Séguin) i njegov toksin: [Effect of penicillin and streptomycin on *Clostridium oedematiens* and its toxin.]—*Vet. Glasn.* **7**, 198-206. [In Croat. German summary.] **3559**

T. found that the smallest amount of streptomycin and penicillin which exerts a bacteriostatic action on *Cl. oedematiens* in 1 ml. of medium was 2 mg. and 0.5 Oxford units (O.U.) respectively. No bactericidal activity was demonstrable at these dosages. Penicillin (5,000 O.U.) and streptomycin (2 mg.) did not prevent the death of mice injected with *Cl. oedematiens*.—I. MARTINI.

EASTERBROOKS, H. L., PLASTRIDGE, W. N. & WILLIAMS, L. F. KIGGINS, E. M. (1955). Vibriosis: diagnostic and therapeutic considerations.—*Vet. Med.* **50**, 51-56 & 68. **3560**

An account of the methods and difficulties of diagnosis of *V. fetus* infection and a report of therapeutic trials in three herds, in which it was confirmed that streptomycin is the antibiotic of choice.—A. SEAMAN.

JUHLER, H. (1955). Comparative serological examinations of 21 bovine strains of *Vibrio fetus*.—*Nord. Vet. Med.* **7**, 52-62. [In English. German and Danish summaries.] **3561**

Eighteen of the strains were found to be closely related. The remaining 3 differed from these 18 and from each other. Studies on the O-fraction isolated from 6 (including the 3 deviating) strains indicated that inter-strain relationship probably depends upon the H-antigen.—C. C. BANNATYNE.

NOWAK, B. (1955). Hodowla *Vibrio fetus*. [Cultivation of *V. fetus*.]—*Méd. vét., Varsovie*. **11**, 12-15. **3562**

N. found the medium described by Bartlett to be most suitable for *V. fetus*; material from the stomach of an infected foetus will produce growth within 18 hours.

The organisms during the early stages of growth are larger and more twisted; occasionally in older cultures *V. fetus* may appear in clumps.—J. R. MITCHELL.

CARLL, W. T., FORGACS, J., HERRING, A. S. & MAHLANDT, B. G. (1955). Toxicity of *Aspergillus fumigatus* substrates to animals. —*Vet. Med.* **50**, 210-212. **3563**

Ether extracts, suspended in olive oil, from maize on which an albino strain of *Aspergillus fumigatus* had been grown produced hyperaemia and oedema when repeatedly applied to shaven areas on the backs of three rabbits and to unshaven areas on the neck of a calf and a horse, with subsequent necrosis in the former and parallel skin folding and increased sensitivity in the latter animals. Orally the extract had mild toxic effects on the calf and the horse, but the unextracted infested maize force-fed to the calf produced lachrymation, anorexia, diarrhoea, and death in 20 days. P.M. examination revealed extensive internal haemorrhages and congestion in the kidneys, lungs, liver, intestines and lymph nodes.—P. K. C. AUSTWICK.

VOGEL, R. A. & COLLINS, M. E. (1955). Hemagglutination test for detection of *Candida albicans* antibodies in rabbit antiserum.—*Proc.*

Soc. exp. Biol., N.Y. **89**, 138-140. [Authors' summary modified.] **3564**

Saline washings from *Candida albicans* yeast cells yielded an active haemagglutinating substance which did not appear to be protein in nature. A candida yeast cell antigen cross reacted with saccharomyces rabbit antiserum. On the other hand, a candida haemagglutinating antigen, equally effective in the homologous test, eliminated the cross reaction with saccharomyces rabbit antiserum.

MENGES, R. W., MCCLELLAN, J. T. & AUSERMAN, R. J. (1954). Canine histoplasmosis and blastomycosis in Lexington, Kentucky.—*J. Amer. vet. med. Ass.* **124**, 202-207. **3565**

Twenty-three cases of proven and suspected histoplasmosis in dogs in Lexington are reported. Twelve (4 proven) came from 3 litters and involved more than half of the puppies. *Histoplasma capsulatum* was isolated from 3 cases and the remainder diagnosed on the appearance of the fungus in tissue sections. It was also isolated from 2 of 41 soil samples from the area. *Blastomyces dermatitidis* was identified in tissue sections from 4 of 7 suspected cases of blastomycosis in dogs, and one case of histoplasmosis and three of blastomycosis in human beings are also reported from this area.—P. K. C. AUSTWICK.

SKULSKI, G. & SYMMERS, W. ST. C. (1954). Actinomycosis and torulosis in the ferret (*Mustela furo* L).—*J. comp. Path.* **64**, 306-311. **3566**

An account of actinomycosis [specific name of the organism not given] in two ferrets and of *Cryptococcus neoformans* infection in another ferret, stated to be the first reports of such infections in Mustelidae.—F.E.W.

KADE, H. & KAPLAN, L. (1955). Evaluation of staining techniques in the histologic diagnosis of fungi.—*Arch. Path.* **59**, 571-577. **3567**

The efficiency of seven staining techniques, haematoxylin and eosin, Giemsa, acid-fast, Brown-Brenn, Hotchkiss-McManus, Bauer, and Gridley, for the demonstration of nine known pathogenic fungi in human and animal tissues was studied. By the parallel use of the Brown-Brenn and Gridley techniques, all except one of the fungi were satisfactorily differentiated. *Nocardia asteroides* (acid-fast variety) required the acid-fast technique.—P. K. C. AUSTWICK.

FAHEY, J. E. (1954). A hemagglutination inhibition test for infectious sinusitis of turkeys.—*Proc. Soc. exp. Biol.* N.Y. **86**, 38-40. [Abst. from author's summary.] **3568**

F. used the haemagglutination-inhibition test on 414 serum samples from 4 turkey flocks, employing an antigen prepared from a pleuropneumonia-like organism (P.P.L.O.). The test yielded reproducible results and might be of value for screening breeder flocks. Four strains of P.P.L.O. isolated from fowls and turkeys from widely separated sources appeared to be antigenically homogeneous.

TARLATZIS, C. B. (K. V.), SPAIS, A. & PANETSO, A. (1954). L'agalaxie contagieuse des brebis et des chèvres. Essai de traitement par l'aureomycine et action comparée *in vitro* de quelques antibiotiques, sulfamidés et autres substances chimiques sur son virus causal. [Contagious agalactia in sheep and goats; treatment with antibiotics.]—*Ann. Méd. vét.* **98**, 432-440. **3569**

Penicillin does not inhibit the growth of the micro-organism of ovine and caprine contagious agalactia. Streptomycin has an inhibitory action in a conc. of 12.5 µg./ml. Chlortetracycline (aureomycin) and chloramphenicol act in a minimum conc. of 3.125 µg./ml. and oxytetracycline (terramycin) acts in a conc. of 0.78 µg./ml. Sulphathiazole, sulphadimidine, sulphathiazomide, hexamine ("urotropin"), sodium acetarsol ("stovarsol"), and nitrofurazone are inactive.—W. R. BETT.

I.—WELLINGTON, N. A. M. (1955). Epididymitis of rams—*Aust. vet. J.* **31**, 10. **3570**

II.—OSBORNE, H. G. (1955). Epididymitis of rams.—*Ibid.* 11-13. Discussion 13-16. **3571**

III.—HALL, W. T. K. (1955). Epididymitis of rams—studies on skin sensitivity and pathology.—*Ibid.* 7-9. **3572**

I.—A brief account is given of the isolation in Victoria of the brucella-like organism responsible for epididymitis of rams. The use of a complement-fixation test [details not given] upon sera from both rams and ewes is outlined. Correlation between clinical and serological findings were good in the ram flock, but not in the "dry ewe" flock. This suggests that abortion due to brucellosis was probably not occurring in the flock tested.

II.—A total of 4,540 rams of unspecified breeds on 60 properties were examined for the first time. Of these 9.3% had some genital abnormality, including 5.3% with epididymitis. The range of epididymitis from property to property varied from nil to over 50%.

When the properties were divided into a lower (<5.3%) incidence group and a higher (>5.3%) incidence group the increase of epididymitis with age was most marked in the

atter. Within this group the incidence increased from 5.7% in yearling rams to 25.0% in aged rams, while in the lower group the increase was from 1.25% to 3.5%.

Little information is available on the effect of permanent genital abnormalities upon lambing percentages. On the 3 properties which had the lower lambing percentages the rejection rates of rams were 19, 15 and 30%.

The conditions under which the bulk of Australian sheep are run make it difficult to tell whether or not abortions occur.

III.—In an i/d test about 0.1 ml. of antigen as a formalized suspension of the brucella-like organism which causes epididymitis of rams is injected into the bare skin over the ribs behind the humero-ulnar joint. The test is best read on the 3rd and 4th days after injection. An increase of 1.5 mm. or more in the thickness of the skin fold approx. 96 hours after inoculation is regarded as positive.

Chronic inflammation of the epididymis may be accompanied by a mass of spermatozoa, germinal cells, phagocytes and a large cell, apparently multinuclear. It is suggested that this cell is composed of a number of secondary spermatoocytes that have come away from the degenerating testicular epithelium in part of the cytoplasm of a Sertoli cell.

It is concluded that as the macroscopic and microscopic lesions of epididymitis are not specific and as the i/d test may indicate some false positives the most satisfactory diagnosis of this brucella-like infection depends upon the isolation of the causal organism.

—L. E. A. SYMONS.

RODRIGUEZ, I. G. (1954). *Bartonella* y bartonellosis de los animales domésticos [*Bartonella* infections in domestic animals.] —*Bol. Cons. Col. vet. Esp. Suppl. cient.* 8, 365-371. 3573

A brief description of the species of *Bartonella*, *Eperythrozoon* and *Grahamella* parasitic on man and animals, with particular emphasis on the condition associated with *B. bovis* and *B. magna* in cattle, and with *eperythrozoon* in sheep and pigs.

—I. W. JENNINGS.

DERRICK, E. H., POPE, J. H., CHONG, S. K., CARLEY, J. G. & LEE, P. E. (1954). *Observations on infection of mice with Eperythrozoon coccoides* Schilling.—*Aust. J. exp. Biol. med. Sci.* 23, 577-582. 3574

The occurrence on two occasions of *E.*

coccoides in a lab. colony of mice is reported. Macroscopic lesions of eperythrozoonosis are splenomegaly at 1—3 weeks after inoculation. Microscopically the spleen is characterized by lymphoid hyperplasia and congestion. The effects of splenectomy, the duration of infection, and the titration of tissues containing the agent, are described. It is pointed out that the presence of this mouse pathogen can be a source of confusion in the isolation by mouse inoculation of infective agents from other species.

—J. H. WHITEM.

THURSTON, J. P. (1955). *Observations on the course of Eperythrozoon coccoides infections in mice, and the sensitivity of the parasite to external agents.*—*Parasitology.* 45, 141-151. [Author's summary modified.] 3575

Intact mice developed acute infections of *E. coccoides* after inoculation, but were then immune to re-infection. Splenectomy evoked acute infections that were heavier and of longer duration than the primary infection; during this phase, the parasites doubled in number in about 5 hours. The presence of splenic tissue transplanted s/c did not prevent this evocation by splenectomy. The number of eperythrozoon decreased rapidly after the peak of infection had been reached, but no immune factor was detected in the blood. No immune factor or infection was transmitted from mother to offspring through the milk.

Citrated blood remained infective for 11 days at 3° C., for 17 hours at 16°-17.7° C. and for 3 hours at 37° C. It was not infective after 24 hours at either 24° C. or 16°-17.7° C., nor after 5 hours at 37° C. Parasitized blood was not infective after drying. Citrated blood was infective to mice when given by mouth, but not when applied externally. Urine and faeces were non-infective.

Eperythrozoon remained infective when infected blood was diluted with twice its volume of water and left for 24 hours at 3° C. Phenol, 0.5%, rendered citrated blood non-infective in an hour. Neoarsphenamine, 0.1%, reduced the infectivity of citrated blood in 16 hours, and rendered it non-infective in 26 hours.

Cortisone did not affect the course of infection of *E. coccoides* in mice when given subcutaneously, 1.0 mg. per 20 g. mouse, once daily for 6-9 days.

Concurrent infection with *Plasmodium berghei* evoked relapses of *E. coccoides* during the terminal stages of the *Pl. berghei* infection.

See also absts. 3644 (flora in swine fever); 3765 (contagious diseases in farm animals); 3766-3769 (diseases of livestock in French Guiana); 3771 (common antigenic fraction to *Brucella* and *Rickettsia burnetii*); 3772 (ovine genital infections); 3838 (bacterial cultures lethal to rats); 3887-3888 (reports, Edinburgh and East of Scotland College of Agriculture); 3889 (report, Basutoland); 3892-3893 (reports, U.S.A.); 3894 (Gaiger-Davies's veterinary pathology and bacteriology).

DISEASES CAUSED BY PROTOZOAN PARASITES

RAY, H. N., DAS GUPTA, N. N., DE, M. L. & GUHA, A. (1955). A new structure observed in *Trypanosoma evansi* (Indian strain). [Correspondence].—*Nature, Lond.* **175**, 392-393. **3576**

Electron and phase-contrast microscopy revealed a flagellar structure forming the inner border of the undulating membrane of the trypanosome. It was likened to the costa of trichomonads.—JAS. G. O'SULLIVAN.

SEN, H. G., DUTTA, B. N. & RAY, H. N. (1955). Effect of splenectomy on "antrycide" therapy of *Trypanosoma evansi* infection in rats. [Correspondence].—*Nature, Lond.* **175**, 778-779. **3577**

In splenectomized rats infected with *T. evansi* and treated with s/c inj. of "antrycide" (quinapyramine sulphate) at the rate of 3 mg./kg. body wt., the parasites disappeared more slowly from the blood than in intact rats. The results support the hypothesis that the drug is activated *in vivo* by the intervention of the reticulo-endothelial system.—D. POYNTER.

SOLTYS, M. A. (1954). Transmission of *T. congolense* by other vectors than tsetse flies. —*Proc. 5th Meet. Int. sci. Comm. Trypanosomiasis Res.*, 1954. B.P.I.T.T. Publ. No. 206. pp. 137-140. **3578**

Four cattle infected with *Trypanosoma congolense* were run, in two lots, with 16 clean beasts in an area free from *Glossina*. Five clean beasts became infected in from 6½ to 211 days. Close contact between infected and non-infected animals was a prerequisite. The non-glossinine vectors were not determined.—JAS. G. O'SULLIVAN.

WATSON, H. J. C. (1954). The maintenance of a strain of *Trypanosoma simiae* in rabbits. *Proc. 5th Meet. Int. sci. Comm. Trypanosomiasis Res.*, 1954. B.P.I.T.T. Publ. No. 206. pp. 161-162. **3579**

A strain of *T. simiae* from domestic pigs was passaged successfully through rabbits but the course of the infection was erratic. When splenectomized rabbits were used there were more constant infections.—JAS. G. O'SULLIVAN.

FAIRBAIRN, H. (1954). The prevalence in Nigeria and the morphology of *Trypanosoma vivax*. —*Proc. 5th Meet. Int. sci. Comm. Trypanosomiasis Res.*, 1954. B.P.I.T.T. Publ. No. 206. pp. 158-169. **3580**

Animal trypanosomiasis in Nigeria is

mostly caused by *T. vivax* which is highly pathogenic for cattle and sheep. The length of the parasite varied with the mammalian host. East and West African strains differed biologically and morphologically.

—JAS. G. O'SULLIVAN.

LEWIS, E. A. (1954). Notes on *Trypanosoma vivax*: its transmission by tsetse and by syringe passages.—*Proc. 5th Meet. Int. Sci. Comm. Trypanosomiasis Res.*, 1954. B.P.I.T.T. Publ. No. 206. pp. 85-89. **3581**

A line of *T. vivax* transmitted by *Glossina pallidipes* and one transmitted by *G. palpalis* were investigated. The former developed more quickly, had a higher infection rate and exhibited swarming. It caused 70% mortality within 24—30 days.

The *G. palpalis*-transmitted line produced an anaemia and the cattle died in poor condition after 100—160 days.

Passage of the *G. pallidipes*-transmitted line through other species of *Glossina* reduced its virulence. Syringe-passage produced a chronic infection similar to that produced by the *G. palpalis*-transmitted line.

—JAS. G. O'SULLIVAN.

VAUCEL, M. & JONCHERE, H. (1954). Observations made during the course of hybridization trials with different "species" of polymorphic trypanosomes.—*Proc. 5th Meet. Int. sci. Comm. Trypanosomiasis Res.*, 1954. B.P.I.T.T. Publ. No. 206. pp. 126-129. [English translation.] **3582**

A shorter strain of trypanosome was obtained from a mixture of *T. brucei* and *T. gambiense*, the hybrid trypanosomes behaving like the original *T. brucei*.—JAS. G. O'SULLIVAN.

TOBIE, E. J. & VON BRAND, T. (1954). Further studies on arsenic resistance in *Trypanosoma gambiense*.—*Trans. R. Soc. trop. Med. Hyg.* **48**, 426-430. **3583**

Repeated exposure of a normal strain of *T. gambiense* to sodium arsenite failed to induce resistance to atoxyl ("tryparsamide") or alter its infectivity. The slight resistance to sodium arsenite and hypersensitivity to a nitrofurane derivative, induced by exposure to atoxyl, appear to be stable characters; but the resistance to reduced atoxyl decreased without contact.—MALCOLM WOODBINE.

PULLIN, J. W. (1955). Observations on the use of cortisone in experimental enterohepatitis in

turkeys.—*Canad. J. comp. Med.* **19**, 67-68. **3584**

Turkey poults were infected with 1,000 embryonated eggs of *Heterakis gallinae*. Cortisone was given intramuscularly in doses of 5 mg. per bird. In one group treatment was started one day before infection and continued for 18 days. Treatment in the second group was from the 12th to 18th days. A third group was untreated. The dosage was based on 1.5 mg./lb. Treatment did not modify the course of experimental enterohepatitis.

—R. GWATKIN.

AKCAY, S. & URMAN, H. K. (1954). Nieren-Coccidiose bei den Eseln. [Eimeria infection of the kidneys in the donkey.]—*Dtsch. tierärztl. Wschr.* **61**, 393. **3585**

An account of damage, localized in the renal tubules, due to the schizogony stages of a renal coccidium.—E. J. L. SOULSBY.

WILLEMS, A., VANSCHOUBROEK, F. & VERCRUYSSSE, R. (1955). De prophylactische werking van nitrophenide tegen *E. tenella*-infectie bij kuikens. [Prophylactic action of nitrophenide against *E. tenella* infection in chicks.]—*Vlaam. diergeneesk. Tijdschr.* **24**, 113-119. [English, French and German summaries.] **3586**

Feeding of a new drug (nitrophenide) in the mash was tested on a total of 364 White Leghorn chicks infected by contact. Mortality was considerably lower in groups fed the drug at the 0.025% and 0.04% levels. Under conditions of poor hygiene and overcrowding the protection was only partial.

—C. A. VAN DORSSEN.

NARDI, E. (1954). Ulteriori osservazioni sulla piroplasmosi suina. [Porcine piroplasmosis.]—*Vet. ital.* **5**, 803-811. [English, French and German summaries.] **3587**

N. records in detail the distribution of piroplasmosis in pigs in the districts surrounding Foggia. The majority of the cases are the result of infection with *Babesia perroncitoi* and present the classical symptoms of fever, anaemia, jaundice and haemoglobinuria. Only rarely is *B. trautmanni* involved and in these cases the disease follows a much more benign course.

—I. W. JENNINGS.

BROWNLIE, J. F. (1954). Aureomycin in the treatment of piroplasmosis in the cat.—*J. S. Afr. vet. med. Ass.* **25**, 65. **3588**

B. found that 100 mg. of chlortetracycline (aureomycin) given by mouth every 8 hours for 3 days produced clinical control.—D. POYNTER.

GATES, D. W., MOHLER, W. M., MOTT, L. O. & SCHOENING, H. W. (1954). Complement-fixation test as a tool in the control of anaplasmosis.—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 51-53. **3589**

A quantity of antigen—41,000 ml., representing the pooled antigen content of the blood of 15 cows—was prepared and found satisfactory for use in the c.f. test for the diagnosis and control of anaplasmosis in cattle.—T. E. GATT RUTTER.

CHRISTENSEN, J. F. (1954). The possibilities of introducing *Anaplasma centrale* into the United States for use in the immunization of cattle against anaplasmosis.—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 56-59. **3590**

A discussion of the advantages and disadvantages of premunition of cattle with *A. centrale* in the control of anaplasmosis.

—T. E. GATT RUTTER.

BROCK, W. E., PEARSON, C. C. & KIEWER, I. O. (1955). An experiment in the treatment of acute anaplasmosis with tetracycline hydrochloride.—*N. Amer. Vet.* **36**, 547-550. **3591**

Tetracycline hydrochloride, administered i/v or i/m at the rate of 3 mg./lb. body wt. to splenectomized calves, reduced the parasitaemia due to *Anaplasma*. The drug also decreased the degree of anaemia but it did not shorten the period during which the parasite could be found in the erythrocytes as compared with the control calves.—JAS. G. O'SULLIVAN.

LAINSON, R. (1955). Isolation of *Toxoplasma gondii* from domestic rabbits in England.—*Trans. R. Soc. trop. Med. Hyg.* **49**, 10-11. **3592**

Brain tissue from 113 domestic rabbits obtained from local market dealers in Surrey was injected into laboratory mice. Six cases of *Toxoplasma* morphologically identical with human strains were isolated. In rabbits these strains produced characteristic antibodies with c.f. titres rising to 1 : 256.

Observations on the occurrence and formation of pseudocysts were made. These bodies were found in two of the original rabbit brains. In mice killed only 11 days after inoculation pseudocysts containing 4 to 50 parasites were found. Progressive development was demonstrated up to 4 months when the pseudocysts contained many hundreds of parasites. No process suggestive of schizogony was detected and ruptured pseudocysts merely liberated

mature toxoplasms. The opinion is expressed that pseudocysts are extracellular in development.—L. P. JOYNER.

MADDY, K. T. (1955). *Sarcosporidiosis*.—N.

See also absts. 3765 (contagious diseases in farm animals); 3766-3767 (diseases of livestock in French Guiana); 3888 (report, Scotland); 3889 (report, Basutoland); 3891 (report, Somaliland Protectorate); 3894 (Gaiger-Davies's veterinary pathology and bacteriology).

Amer. Vet. **36**, 455-457.

3593

M. discussed the taxonomy of *Sarcocystis*. He is not convinced of its pathogenicity. The public health significance of sarcosporidiosis is dealt with.—JAS. G. O'SULLIVAN.

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

ZAVAGLI, V. (1954). S.A.T.₂-Virus aftoso. [Foot and mouth disease virus S.A.T.₂.] *Zootrophilassi*. **9**, 258-259. **3594**

A note explaining that F. & M. disease virus SAT₂ is the designation of a strain originally isolated in South Africa, along with SAT₁ and SAT₃, all of which are, no doubt, related to the standard strains O, A and C. —I. W. JENNINGS.

WALDMANN, O., NAGEL, H.-C. & ZIMMERMANN, T. (1955). L'infection aphteuse artificielle chez les veaux nouveau-nés, à jeun. [Experimental foot and mouth disease in fasting newborn calves.].—*Bull. Off. int. Epiz.* **43**, 708-722. **3595**

Fasting new-born calves were inoculated i/v or i/p with an extract of vesicular material obtained from cattle infected with F. & M. disease virus, type C. Multiplication of virus occurred chiefly in the heart, lungs and bones attaining a titre of 10⁻⁴–10⁻⁷. Passage in calves was effected without loss of virulence for adult cattle. The highest titres were obtained after a reaction having two phases, viz., an asymptomatic or incubation stage during the first 24 hours after inoculation, and the clinical stage, followed by death in 12-24 hours. The clin. manifestations and P.M. findings were described.—T. E. GATT RUTTER.

WALDMANN, O. & ZIMMERMANN, T. (1955). Préparation d'un vaccin anti-aphteux selon la méthode de Waldmann et Köbe en employant le veau comme source d'antigène. [Foot and mouth disease vaccine as described by Waldmann and Köbe using the calf as the source of antigen.].—*Bull. Off. int. Epiz.* **43**, 723-730. **3596**

Monovalent (type C) F. & M. disease vaccines were prepared from the heart, lungs, liver and bones of young calves and immunity tests were carried out. Results were considered satisfactory.—T. E. GATT RUTTER.

I.—CIACCIO, G. & GIROUD, P. (1954). Comportement du lapin nouveau-né à l'infection par le virus de la fièvre aphteuse de type C.

[Reaction of the newborn rabbit to infection with foot and mouth disease virus type C.]

—*C. R. Soc. Biol., Paris*. **148**, 1975-1976. **3597**

II.—CIACCIO, G., GIROUD, P. & GASPARINI, G. (1954). La souris dans l'expérimentation du virus aphteux. [Mice as experimental animals in foot and mouth disease.].—*Ibid.*, 1976-1979. **3598**

I.—Mouse-adapted (neurotropic) and g. pig adapted (viscerotropic) strains of F. & M. disease virus Type C were passaged in unweaned rabbits.

A strain adapted to unweaned mice and to 20-24-day-old mice was passaged 6 times in young unweaned rabbits by i/p injection of brain tissue. The younger the rabbits the more susceptible they were. In some cases, with the mouse-adapted neurotropic strain, there was death preceded by localized nervous symptoms (paresis and paralysis) especially of the hind limbs. A g. pig inoculated in the plantar pad was used as test animal. Virus was present in the brain, heart, kidneys, tongue and feet but no aphthous lesions occurred either in the tongue or on the feet.

II.—A g. pig strain of Type C virus was passaged 35 times in unweaned mice and 20 times in mice aged 20-30 days. Susceptibility diminished with age. Cortisone treatment did not increase the number of passages in adult mice. Only 5 out of 89 attempts were successful. Virus was isolated from two cortisone-treated mice which remained apparently healthy 10 and 21 days after infection respectively. Brain virus was a more frequent cause of paralysis than either serum or virulent blood.

—T. E. GATT RUTTER.

SCHMIDT, E. (1955). Receptivité du hamster au virus de la fièvre aphteuse. [Susceptibility of the hamster to the virus of foot and mouth disease.].—*Bull. Off. int. Epiz.* **43**, 756-760. **3599**

A limited number of experiments with F. & M. disease virus, type O, was carried out on hamsters which were found to be susceptible up to the age of about 60 days. The incubation

period increased with age. Dullness and inappetence were constant symptoms. Weakness of the hind quarters and of the anal and vesical sphincters was also observed. In animals over one month old, a progressive dyspnoea was the only clinical manifestation; death followed in over 24 hours, probably from paralysis of the respiratory muscles. The course of the disease in animals over 60 days old was longer and symptoms included paraplegia, resulting in crossing of the hind legs, paralysis of the right foreleg and of the ear muscles. This syndrome was followed by signs of recovery about 3 weeks from the onset, when the animal was killed. P.M. findings included congestion and haemorrhages in the liver and kidneys, patches of pneumonia, and congestion of the brain.—T. E. GATT RUTTER.

GARCIA MATA, E., FEDERER, K. E., PIZZI, L. & ARAMBURU, H. G. (1954). Acción patógena del virus aftoso en neonatos de diferentes especies. [Pathogenicity of foot and mouth disease virus in different species of unweaned animals.].—*Rev. Vet. Milit., B. Aires.* 2, 205-206. [Only abst. given. English summary in *Summ. of Communications. IInd Pan-Amer. Congr. vet. Med.*, S. Paulo. April 3-10, 1954. Sect. B. p. 2. Mimeographed.] 3600

Infection with F. & M. disease virus in unweaned rabbits, g. pigs, kittens, puppies, piglets, foals, lambs and heifer calves generally caused a febrile reaction with locomotory, respiratory and digestive disturbance, usually fatal after 30-60 hours. P.M. examination revealed degenerative myocarditis with occasional pulmonary and intestinal congestion.

Infective titres were not as high as in unweaned mice, but appreciable titres were achieved after 14 passages in rabbits. Heart muscle yielded the highest titre; brain was non-infective.

Transmission of antibodies *via* the placenta takes place in sheep but not in cattle.

—H. E. HARBOUR.

SCHMIDT, E. & SIEVERS, W. H. K. (1954). El cultivo del virus aftoso. Método de Frenkel. [Cultivation of the foot and mouth disease virus.].—*Zoioterapia, Chile.* 3, No. 11, pp. 19-22. 3601

A detailed description of all stages of the method described by Frenkel for the cultivation of F. & M. disease virus, together with some notes on small-scale cultures.—H. E. HARBOUR.

ARAMBURU, H. G., GARCIA MATA, E., PIZZI, L. & ARAGONA, J. (1954). Controllo sull'

estrazione del virus aftoso da sospensioni destinate alla preparazione del vaccino. [The degree of extraction of virus from tissue suspensions in preparation of foot and mouth disease vaccines.—*Vet. ital.* 5, 203-212. [English, French and German summaries.] 3602

Most of the virus already titrated by means of the complement-fixation test passes into the extraction fluids during the initial two extractions. A certain amount of virus always remains in the tissues after the industrial extraction for the production of F. & M. disease vaccines. It is very difficult to extract this residual virus.—I. MARTINI.

FRENKEL, H. S. (1955). Procédés d'inactivation du virus dans la production du vaccin anti-aphteux. [Inactivation of virus for the production of foot and mouth disease vaccine.].—*Bull. Off. int. Epiz.* 43, 624-631. 3603

A review of the methods of inactivation of F. & M. disease virus for vaccine production. These include:—heat (at 25° C.) and formol treatment; ultra-violet irradiation; the use of sonic and ultra-sonic waves; crystal violet inactivation.—T. E. GATT RUTTER.

UBERTINI, B., NADELLI, L., BAREI, S. & SANTERO, G. (1955). Observations et études sur le virus de la fièvre aphteuse cultivé "*in vitro*" suivant la méthode de Frenkel. [In vitro cultivation of foot and mouth disease virus according to Frenkel's method.].—*Bull. Off. int. Epiz.* 43, 559-574. 3604

F. & M. disease virus was grown *in vitro* according to the method described by Frenkel. The vaccine had potent immunizing properties. Its antigenic value was lower than that of natural virus.—T. E. GATT RUTTER.

GRIBANOV, V. (1955). Résultats de l'épreuve du vaccin antiaphteux VIEV préparé avec un virus adapté au lapin. [Evaluation of lapinized foot and mouth disease vaccine.].—*Bull. Off. int. Epiz.* 43, 632-635. 3605

Direct experiments and field trials were carried out with lapinized F. & M. disease vaccine. On 73 farms in the immediate neighbourhood of outbreaks 9,737 head of livestock [not specified] were vaccinated and none developed the disease. Of 883 head vaccinated on 8 infected farms where cases of natural infection had already occurred 134 (16%) developed the disease within the first 14 days.—T. E. GATT RUTTER.

FOGEDBY, E., RANDRUP, A. & WEHMEYER, P. (1955). Dessiccation des vaccins anti-

aphteux. [Desiccation of foot and mouth disease vaccines.]—*Bull. Off. int. Epiz.* **43**, 745-750. **3606**

Types O₁, O₂ and C of F. & M. disease virus were used for the preparation of vaccines. The virus was attenuated by heat and alkali, or by heat and formol; a mixture of brain and beef extract was added as adjuvant and the vaccine was lyophilized. Immunity tests on g. pigs gave satisfactory results.

—T. E. GATT RUTTER.

WILLEMS, R. & LEUNEN, J. (1955). La vaccination préventive dans la lutte contre la fièvre aphteuse. Observations faites en Belgique. [Vaccination against foot and mouth disease in Belgium.]—*Bull. Off. int. Epiz.* **43**, 671-694. **3607**

An account of F. & M. disease control in Belgium. This consists of compulsory vaccination, free of charge, of all susceptible livestock around the centres of infection and the enforcement of strict veterinary police measures. The vaccine used is a trivalent aluminium adsorbate vaccine.—T. E. GATT RUTTER.

GRIBANOV, V. (1955). L'efficacité de l'immunisation du bétail contre la fièvre aphteuse en U.R.S.S. [The efficacy of immunization of animals against foot and mouth disease in the Soviet Union.]—*Bull. Off. int. Epiz.* **43**, 660-670. **3608**

The adsorbed tissue vaccine ("VIEV") used in the U.S.S.R. for the active immunization of livestock against F. & M. disease was described and compared with tissue vaccine produced according to the method described by Vallée-Schmidt-Waldmann. The policy of F. & M. disease control in the U.S.S.R. embodies the active immunization [with "VIEV" vaccine] of all livestock and the enforcement of veterinary police measures in affected areas and those directly threatened with the disease. These measures are all compulsory and the expense is borne by the state.—T. E. GATT RUTTER.

ESCOBAL, R., RODRIGUEZ AGUILAR, M. O. & MIEREZ, J. L. (1955). Campagne nationale de vaccination dans quelques districts d'Argentine pour la prophylaxie de la fièvre aphteuse. [Vaccination against foot and mouth disease in Argentina.]—*Bull. Off. int. Epiz.* **43**, 636-659. **3609**

A total of 81,811 cattle and 17,795 sheep in the Gualeguaychu district of the Entre-Rios Province were immunized with a trivalent F. & M. disease vaccine. Breakdown of

immunity amounted to 0.892% among cattle—generally young calves.—T. E. GATT RUTTER.

RODRIGUES, C. & VILLELA, E. (1954). Les premiers résultats de la vaccination anti-aphteuse au Brésil par la méthode de André Thomas. [First results of vaccination against foot and mouth disease in Brazil by the method described by André Thomas.]—*C. R. Acad. Sci., Paris*. **238**, 1363-1365. **3610**

Two thousand cattle were inoculated with trivalent aluminium hydroxide F. & M. disease vaccine, prepared according to the method described by Thomas [*V.B.* **24**, 403; **25**, 82]. When an outbreak of the disease occurred in unvaccinated cattle in contact with the vaccinated cattle 15-17 days after vaccination, no breakdown of immunity was observed.

—R.M.

MESZAROS, J., SZENT-IVANYI, M., TAKACS, L. & BEREZNYAI, T. (1954). Száj- és körömfájás elleni hyperimmunszérum előállítása inaktivált vírus segítségével. [Preparation of foot and mouth disease hyperimmune serum using inactivated virus.]—*Mag. állator. Lapja*. **9**, 395-399. [English and Russian summaries.] **3611**

F. & M. disease hyperimmune serum was obtained from beef cattle 14-16 days after the last of a series of 3 injections into the dewlap of 50, 150 and 300 ml. respectively of F. & M. disease vaccine.—R.M.

SHAHAN, M. S. (1954). Status of the Plum Island animal disease laboratory.—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 120-124. **3612**

A description of Plum Island Foot and Mouth Disease Research Station and of the safety measures taken against the spread of infection from the Station.—T. E. GATT RUTTER.

ANON. (1955). Report of the Committee on Vesicular Diseases.—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 406-417. **3613**

A general summary is given of the incidence and suggested methods of prevention and control of F. & M. disease, vesicular exanthema and vesicular stomatitis in the U.S.A. No F. & M. disease was reported during the last year and the incidence of vesicular exanthema is lower than that of the previous three years. Vesicular stomatitis is potentially a serious condition and may cause severe losses. Reference is made to laboratory findings that the virus may be carried and transmitted by

mosquitoes and horseflies; but cooking of swill remains the most important method of control.—W. E. PARISH.

SCHOENING, H. W. (1955). **Vesicular stomatitis in swine.**—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 390-395. **3614**

Report of a committee to investigate vesicular stomatitis in pigs in the U.S.A. Details of outbreaks are given, in some of which cattle and horses in close contact with the diseased pigs remained healthy. Possible sources and means of spread of infection are discussed, and reference is made to spread by contact, where some of the in-contact animals may become infected without having clinical symptoms.—W. E. PARISH.

CAMARGO, N. F. (1955). **A contribution to the study of vesicular stomatitis in Mexico.**—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 379-389. **3615**

An account of the work of the Laboratory for the Diagnosis of Vesicular Diseases. Figures of the incidence of diagnosed cases of the New Jersey and Indiana types of vesicular stomatitis and their relationship to geographical distribution in Mexico are given.—W. E. PARISH.

GRIFFIN, T. P., HANSON, R. P. & BRANDLY, C. A. (1954). **The effect of environmental temperature on susceptibility of the mouse to vesicular stomatitis virus.**—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 192-198. **3616**

Mice acclimatized to a low temperature (8° C.) were more resistant to intracerebral inoculation with vesicular stomatitis virus than those acclimatized to higher temperatures (27° or 35° C.). Mortality was markedly lower, the period of incubation was longer and the metabolic rates were higher among the low-temperature groups.—T. E. GATT RUTTER.

NIKOLITSCH, M. (1954). **Die Aujeszkysche Krankheit beim Reh. [Aujeszký's disease in roe deer in Yugoslavia.]**—*Wien. tierärztl. Mschr.* **41**, 603-605. [English, French and Italian summaries.] **3617**

N. described Aujeszký's disease in a deer in Yugoslavia. He speculated on the role of the horseshoe bat [*Rhinolophus* sp.] in the maintenance of Aujeszký's disease and rabies in Europe. This bat, although mainly insectivorous, is reputed to feed occasionally on the blood of cattle. As its stomach is merely a widening of the oesophagus, it is unable to

digest food fully; its faeces are therefore attractive to rats as food. Rats are thought to be important disseminators of Aujeszký's disease.—E.G.

ENRIGHT, J. B., SADLER, W. W., MOULTON, J. E. & CONSTANTINE, D. (1955). **Isolation of rabies virus from an insectivorous bat (*Tadarida mexicana*) in California.**—*Proc. Soc. exp. Biol.*, N.Y. **89**, 94-96. [Authors' summary modified.] **3618**

Rabies virus was isolated from a Mexican Freetail bat (*T. mexicana*) collected in northern California in July, 1954. The isolation of this virus and certain aspects of its passage history merit further investigation.

BRUECKNER, A. L., REAGAN, R. L., DELAHA, E. C. & COOK, S. R. (1954). **Natural and experimental rabies in non-sanguivorous bats.** *Stwest. Vet.* **7**, 320-322. **3619**

Eight groups of 4 cave bats (*Myotis lucifugus*) each were inoculated s/c in the neck region with 0.1 ml. of a 10% suspension of rabies virus and one group was killed every 24 hours. The salivary glands in each group were pooled, ground with alundum and made into a 20% suspension with physiological saline. The brains were similarly treated. Mouse inoculation tests were carried out; symptoms of rabies occurred and Negri bodies were demonstrable in those inoculated with the 7th and 8th day suspensions of salivary glands. Similar tests with brains and salivary glands of bats which had not been inoculated with virus gave negative results.

—T. E. GATT RUTTER.

CORSALINI, T. (1954). **La glicosuria negli ovini iniettati con virus fisso della rabbia. [Glycosuria in sheep infected with fixed rabies virus.]**—*Vet. ital.* **5**, 213-217. [English, French and German summaries.] **3620**

Out of 103 sheep infected with rabies fixed virus 46 showed glycosuria at the end of the fourth day, i.e., at the beginning of the first clin. symptoms. A higher percentage was observed when the urine was examined until the 12th hour before death.—I. MARTINI.

ZUBKO, V. N. & BARANOV, N. N. (1955). **[Prophylactic inoculation of dogs against rabies.]**—*Veterinariya, Moscow.* **32**, No. 3, pp. 60-62. [In Russian.] **3621**

Stray dogs are the main source of rabies. But for sure prevention of rabies it is not sufficient to destroy them. Mass immunization of dogs is recommended as almost equally

important, as rabies is widespread amongst wild animals with which dogs have contact. A group of veterinary officers, who applied this combination of methods, observed a steep fall in the incidence of the disease in their district. Amongst the immunized animals the incidence of the disease was 5-7 times less than amongst the non-immunized. Efforts should be directed towards improving the vaccine.

—A. MAYR-HARTING.

FOLEY, R. J. (1955). A practitioner's experience with rabies vaccines.—*Vet. Med.* **50**, 322-324 & 328. **3622**

F. recorded his experience with rabies vaccines in dogs. Tissue vaccine conferred an immunity which resisted field challenge at 18 months and caused no deaths or paralysis. There was abscess formation in 9 subjects and breakdown of immunity before 12 months in 3 cases. Untoward effects following the use of chick embryo vaccine included febrile reactions, paralysis in 9 cases and 4 deaths. In one case immunity did not resist field challenge at 18 months; one dog developed rabies 21 days after vaccination and another died from rabies 76 days after vaccination with no history of exposure.—T. E. GATT RUTTER.

FRENKEL, H. S. (1955). Een methode tot kweek in vitro van vaccinia virus. [*Cultivation of cow pox virus in vitro.*]—*Tijdschr. Diergeneesk.* **80**, 13-16. [English, French and German summaries.] **3623**

Vaccinia virus was cultured in tissue cultures of foetal skin of cattle and sheep. This method ensures bacterial sterility. Vaccine prepared in this way is suitable for lyophilization. Freeze-dried samples can be stored at room temp. for 3 months.—C. A. VAN DORSEN.

PUNTIGAN, F. & ORTH, E. (1953). Über den Nachweis des Vacciniavirus im Blut von zur Impfstoffgewinnung dienenden Junggrindern. [*Identification of vaccinia virus in the blood of young cattle used for preparation of vaccine.*]—*Z. Hyg. InfektKr.* **136**, 319-324. **3624**

Vaccinia virus was identified in whole blood and plasma by electron microscopy 20 min. to 22 days after vaccination. One to 20 hours after vaccination the virus content of the blood is so low that it is only detectable by this method.—R. B. HOLCOMBE.

CORDIER, G. (1953). Une demi siècle de prophylaxie anticlaveuse en Tunisie. [*A half-century of vaccination against sheep pox in Tunisia.*]—*Ann. Serv. Prod. Anim., Tunis.* **1**, pp. 129-133. [Mimeographed.] **3625**

A review of the prophylactic methods used to control sheep pox in Tunisia. An antiserum in use at first was superseded by both dead and living, attenuated vaccines.—M. B. HAWKSLEY.

DELPY, L.-P., RAFYI, A. & MIR CHAMSY, H. (1953). Recherches sur l'immunisation anticlaveuse. I. Sur la vaccination en un seul temps contre la clavelée et la fièvre charbonneuse, avec des antigènes vivants, associés et stabilisés. II. Sur un nouveau vaccin tissulaire formolé. [*Immunization against sheep pox. I. Simultaneous immunization against sheep pox and anthrax. II. A formolized tissue vaccine for sheep pox.*]—*Arch. Inst. Hessarek.* No. 7, pp. 27-32 & 33-39. **3626**

I & II.—The authors described the properties and indications of a mixed vaccine comprising viable sheep pox virus adsorbed on viable anthrax spores, in relation to its use on 2,300,000 sheep. Results were claimed to have been very satisfactory under the conditions obtaining in Persia. Experiments with a formolized sheep pox tissue vaccine prepared according to Borrel's technique were also described. Formol to 1:10,000 was employed and the vaccine found to be of value in Mazanderay sheep.—G. V. LAUGIER.

BURNET, F. M. & LIND, P. E. (1954). Recombination of influenza viruses in the de-embryonated egg. I. The use of periodate-treated sera for *in vitro* characterization of influenza virus strains. II. The conditions for recombination and the evidence for the possible existence of diploid influenza virus. —*Aust. J. exp. Biol. med. Sci.* **32**, 145-151 & 153-163. **3627**

It was shown that the addition of potassium periodate in optimal amounts to immune rabbit sera results in the removal of non-specific inhibitor of haemagglutination by heated virus without in any way affecting the specificity of the antisera. For certain strains of influenza A virus an account is given of the techniques used for the *in vitro* identification of primary and recombined virus types. The two phenomena used to indicate the occurrence of recombination were the occurrence of double neutralization, and the development of meconium- and serum-resistant agglutination.—J. H. WHITTEM.

LIND, P. E. & BURNET, F. M. (1954). Recombination between neurotropic and non-neurotropic influenza virus strains.—*Aust. J. exp. Biol. med. Sci.* **32**, 437-452. **3628**

This paper presents the findings of an extended investigation of the recombinants produced from a number of strains of influenza virus, with particular attention to the occurrence of neuropathogenicity for mice. An alphabetical genetic notation is presented for the description of recombinant strains in terms of their marker characteristics.—J. H. WHITTEM.

LWOFF, A., DULBECCO, R., VOGT, M. & LWOFF, M. (1955). Kinetics of the release of poliomyelitis virus from single cells.—*Virology*, 1, 128-139. [Authors' summary copied verbatim.] 3629

A technique is described which allows the handling and observation of single animal cells in microdrops.

The kinetics of the release of poliomyelitis virus type 1 (Brunhilde strain) by individual monkey kidney cells was studied. After a latent period of a few hours, the bulk of the virus was released in less than 1 hour. Characteristic morphological changes appear to be correlated with the release of the virus.

FULTON, J. S. (1954). Encephalitis in man in Saskatchewan caused by the virus of Western equine encephalomyelitis.—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 434-437. Discussion: pp. 437-438. 3630

An account of a general survey of human encephalitis caused by Western equine encephalomyelitis virus in Saskatchewan and of the value of the virus neutralization test in its diagnosis.—T. E. GATT RUTTER.

V. SPROCKHOFF, H. (1954). Untersuchungen über den Nachweis von komplementbindenden Antikörpern bei bornavirus-infizierten Pferden und Kaninchen. [Demonstration of complement-fixing antibodies in horses and rabbits infected with Borna disease.] —*Zbl. VetMed.* 1, 870-877. [English, French and Spanish summaries.] 3631

The complement-fixation test using specific brain antigen is of no value for the confirmation of clinical Borna disease in the horse, but rabbits produce complement-fixing antibodies a short time after inoculation with material from infected horses.—W. G. SILLER.

POLSON, A. & MADSEN, T. (1954). Particle size distribution of African horsesickness virus.—*Biochim. biophys. Acta*, 14, 366-373. [Authors' summary slightly modified.] 3632

Infective particles showing at least two sedimentation constants were observed in suspensions of neurotropic African horsesickness

virus. Assuming a density of 1.33 g./ml., particle sizes of 31.2 m μ and 50.8 m μ were calculated for the two particles respectively. In addition to these particles, a complement fixing, but non-infective particle, of diam. 12 m μ was found in suspensions of the virus.

CORSICO, G. (1954). Contributo alla conoscenza dell'aborto equino da virus. [Research on equine virus abortion.]—*Clin. vet., Milano*, 77, 321-333. [English summary.] 3633

C. examined 38 fetuses from cases of equine virus abortion. The macroscopic changes included jaundice, hydropericardium, petechial haemorrhages under the pleura and pericardium, punctiform haemorrhages in the thymus, and foci of necrosis in the liver. These changes are not of course specific and diagnosis can be based with greater certainty on the histological changes which include necrotic foci in the liver, spleen and lymph nodes, cloudy degeneration of the myocardium, kidneys and adrenal glands, and the presence of acidophilic nuclear inclusion bodies in the cells of the liver.

—I. W. JENNINGS.

SIMPSON, S. (1954). Vaccination against rinderpest with lapinized virus in the Gold Coast.—*Bull. epiz. Dis. Afr.* 2, 6-23 & 25. [In English and French.] [Mimeographed.] 3634

The results obtained since the lapinized rinderpest virus was first used in the Gold Coast in 1950 are described. The virus was passaged continuously at weekly intervals in rabbits from Jan. 1950 to April 1953 without any alteration in potency as an immunizing agent.

This virus has been used to immunize both the relatively resistant zebu breeds and the highly susceptible unhumped dwarf cattle of the Gold Coast. Reaction to inoculation has been very mild in cattle in good condition, but may be severe in cattle in poor condition and especially in the rainy season. No mortality directly attributable to the virus has occurred. It was necessary to use the virus within 48 hours of dispatch from the laboratory as facilities for freeze-drying were not available.

Unsatisfactory results were obtained on a few occasions where supervision of the subordinate staff had not been adequate.

By the use of mobile equipment it was possible to avoid the dangers associated with the collection of large numbers of cattle into one place.

I.—REISINGER, R. C., MUN, C. P. & LEE, N. S. (1954). Use of rabbit-passaged strains of the Nakamura LA rinderpest virus for immunizing

- Korean cattle.**—*Amer. J. vet. Res.* **15**, 554-560. **3635**
- II.—NAKAMURA, J., KISHI, S., KIUCHI, J. & REISINGER, R. (1955). An investigation of antibody response in cattle vaccinated with the rabbit-passaged LA rinderpest virus in Korea.—*Ibid.* **16**, 71-75. **3636**
- I.—Calves in Korea proved to be so susceptible to lapinized rinderpest virus that it was necessary to administer anti-rinderpest hyperimmune serum at the same time as the virus, in order to avoid the death of vaccinated cattle. Following the work of Nakamura & Miyamoto [*V.B.* **24**, 1496] who first described the passage of lapinized rinderpest virus through chick embryos, Reisinger *et al.* confirmed that the pathogenicity of lapinized-avianized (LA) virus for calves was very low, and was not modified by up to 220 passages in rabbits. Inoculation of rabbit-passaged LA virus into 4 calves caused little or no thermal reaction, and 2 of them were immune to fully virulent virus when challenged 6 and 12 months after vaccination. During 1952-53 more than 30,000 cattle in Korea were innoculated with LA virus with no adverse reactions.
- II.—Antibody response to field vaccination with lapinized-avianized virus was investigated in 91 cattle in 1952 and 41 cattle in 1953. In 1952 the results of tests for complement fixing (c.f.) and virus neutralizing (v.n.) antibodies were as follows :—(1) c.f. antibody was demonstrated in 62.6% of vaccinated cattle ; (2) v.n. antibody was present in the serum of all of 10 cattle positive for c.f. antibodies, in 5 out of 6 cattle which gave doubtful reactions for c.f. antibodies, and in 20 out of 27 cattle negative for c.f. antibodies ; (3) immune response to the vaccination, as judged by the development of either c.f. or v.n. antibodies, was therefore present in 82 out of the 91 vaccinated cattle. In 1953 the c.f. antibody only was tested : it was present in 65% of the cattle vaccinated that year.—R.M.
- IYER, S. V. & SRINIVASAN, R. (1954). Studies on a new Madras strain of lapinized rinderpest virus suitable for use in vaccine production.—*Indian vet. J.* **31**, 155-184. **3637**
- Rinderpest virus, propagated in buffalo calves for 3 years, was subsequently adapted to rabbits by alternate buffalo-calf/rabbit passages. With lapinization, virulence gradually increased for rabbits but decreased for bovine species, and after 90-100 serial passages in rabbits the virus proved safe and efficacious for immunizing buffaloes, sheep and goats. After 178 rabbit passages, back-passaging in bovines for 16 passages did not alter the virulence for the latter.—R. N. MOHAN.
- MANSJOER, M. (1954). Penjelidikan tentang penyakit ingusan pada sapi dan kerbau di Indonesia terutama di pulau Lombok. [Contribution to the knowledge of the "penjakit ingusan" in cattle and buffaloes in Indonesia, especially on the island of Lombok.] [A disease resembling bovine malignant catarrh. —*Ed.*]—*Inaug. Diss., Bogor.* pp. 189. [English, French, Dutch and German summaries.] **3638**
- A filtrable virus was isolated from cases of "sakit in gusan," a disease of the water buffalo, comparable with bovine malignant catarrh. For experimental reproduction in cattle and buffaloes injections of 100-500 ml. blood were necessary (whereas the South African "snot-siekte" can be reproduced with 1-5 ml. blood). The virus passes through Seitz filters. It was cultured in chick embryos with difficulty and was passaged through rabbits for 10 generations. It is viable for 10 days at room temperature (25° to 30° C.) ; it is killed by heat at 70° C. and keeps its virulence at -20° C. for a month. After lyophilization it can be preserved at -20° C. for a year.
- Recovery from infection does not confer immunity against re-infection.
- C. A. VAN DORSSEN.
- OLSON, C., SEGRE, D. & SKIDMORE, L. V. (1955). Cutaneous papillomatosis (warts) of cattle.—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass., Omaha*, 1954. pp. 219-226. **3639**
- A general paper. Further evidence is given that chick embryo vaccine is of no value and bovine tissue vaccine is of limited value in immunizing calves against the infection, even when the strain of virus used as the challenge to immunity is the same as that used in preparation of the vaccines.—W. E. PARISH.
- COX, H. R. (1954). Bluetongue.—*Bact. Rev.* **18**, 239-253. **3640**
- Recent outbreaks of bluetongue have occurred in 5 States in the U.S.A. The disease affects mainly sheep. Species of *Culicoides* have been incriminated as vectors. Many viral strains are recognized and the best practical immunity is obtained by the use of polyvalent, chick-embryo attenuated vaccine.
- C. C. BANNATYNE.
- TAKEMORI, N., NAKANO, M., HEMMI, M. & KITAOKA, M. (1955). Propagation of Rift Valley fever virus in ascites hepatoma cells

of the rat ; production of a new variant of the virus.—*Virology*, 1, 58-82. [Authors' summary modified.] 3641

Studies were made on the multiplication of both pantropic and neurotropic strains of Rift Valley fever virus in rat ascites hepatoma cells grown in tissue culture and in the animal body. It was found that both strains of the virus grew quite readily in the hepatoma cells grown *in vitro*, and the titre of the virus in the culture fluids rose rapidly to a max. of 10^{-5} to 10^{-7} in a few days and before the appearance of cell degeneration. The titres of these two strains did not differ significantly from each other. Similarly, both strains of the virus grew quite readily in ascites hepatoma with moderate destruction of tumour cells, and virus appeared in the ascitic fluid in high titre.

After 11 serial passages of the neurotropic strain of the virus in ascites hepatoma followed by 8 serial low-dilution passages and 5 consecutive limiting-dilution passages in mouse brain, a new stable variant pathogenic for mice when inoculated s/c was obtained in what appeared to be pure culture. Later it was found that the variant or variants having this type of virulence appeared in ascitic fluid on the first to the 4th day of infection of a single ascites hepatoma by the original neurotropic strain of the virus. One of the variants appearing in the 4th-day ascitic fluid was also isolated by 4 consecutive limiting-dilution passages in mouse brain ; it had properties essentially similar to those of the one described above and obtained from 11th ascites hepatoma generation.

I.—IVANOV, X., PETRICHEV, M., MLADENOV, Z. & KONSTANTINOV, A. (1952). [Morphological changes in swine fever with reference to diagnosis. III. Lesions in the lymph nodes and the spleen.]—*Izv. Inst. eksp. vet. Med., Sofia*, 2, pp. 75-88. [In Bulgarian. Russian summary.] 3642

II.—IVANOV, X., PETRICHEV, M. & ENCHEV, S. (1952). [Morphological changes in swine fever with reference to diagnosis. IV. Lesions of the gall bladder and cystic duct.]—*Ibid.* pp. 89-98. [In Bulgarian. Russian summary.] 3643

[For previous parts, see *V.B.* 25, 2397 & 2398.]

I.—Thirteen groups of lymph nodes from 55 pigs slaughtered 4-7 days after infection with swine fever were examined. They are listed below in order of frequency of lesions :—renal, posterior mediastinal, gastric, cervical, superficial inguinal, supramammary, portal, bronchial, popliteal, hypogastric, jejunal, colic, and anal.

Necrosis in the parenchyma was the most characteristic lesion of the lymph nodes. Haemorrhagic infarcts were present in the spleen in 20 out of 37 cases. Out of 30 spleens there was thickening of the vascular walls in 12, and follicular and other types of necrosis in the parenchyma of 15. A special feature was destruction of the endothelial cells of the sinuses, the centres of which sometimes showed signs of necrobiosis.

II.—The gall bladders and cystic ducts of 163 pigs with swine fever (13 of them spontaneous cases) were examined macroscopically ; 67 of the gall bladders and 45 of the ducts were also examined histologically. The main lesions present 4-6 days after infection were :—destruction of lymphatic tissue ; formation of pseudomembranes ; haemorrhage and hyperaemia (visible to the naked eye in 18-64% and microscopically in 39-84%). The pseudomembranes appeared to be analogous with the early stages of ulcers in the large intestine.

—F. A. ABBEY.

GOLEBIEWSKI, S. (1954). Zmiany anatomo-patologiczne a flora bakteryjna przy pomorze swin. [Study of the pathology and bacterial flora in swine fever.]—*Méd. vét., Varsovie*, 10, 258-263. [In Polish.] 3644

An account of detailed work on the pathology and bacteriology of swine fever. The incidence of various secondary invaders is described. Changes involving the skin, spleen, trachea, and bladder occur in 10-30% of cases. Changes involving the lymph nodes, caecum, and kidney occur in 50-75% of cases. Bacteriologically the organisms involved along with the virus are :—*Pasteurella suisepitica* in 22.2% ; others are *Erysipelothrix rhusiopathiae*, *Corynebacterium pyogenes*, *Bact. coli*, streptococci and *Salmonella typhi-murium*. Swine fever occurs as a single (virus only) infection in 63.5% of cases, or as a mixed infection in 36.5%.—J. R. MITCHELL.

DALE, C. N., ZINOBER, M. R. & TORREY, J. P. (1954). Variations (variants) of hog cholera virus. III. Further attempts to enhance its variant characteristics by simultaneous passage with varied amounts of different serums.—*Proc. 91st Ann. Meet. Amer. vet. med. Ass., Seattle*, 1954. pp. 124-131. Discussion: pp. 131-132. 3645

Serial passage of variants of swine fever virus simultaneously with 20 ml. or more of serum delayed the onset of symptoms and diminished the variant characteristics. With

15 ml. of serum the onset of symptoms was accelerated and the variant characteristics were enhanced. Variant was produced and propagated by simultaneous injections of variant virus and 15 ml. of experimental serum prepared by the U.S. Bureau of Animal Industry.

—T. E. GATT RUTTER.

BELL, W. B. (1954). **Studies of the hog cholera virus. I. The effect of ultraviolet irradiation.** —*Vet. Med.* **49**, 17-18. **3646**

Pig-spleen virus after exposure to u.v. light of predominantly 3650 Å. or of 2537 Å. for periods ranging from 15-60 min. was found to be fully virulent for susceptible young pigs.

—G. V. LAUGIER.

DOYLE, T. M. & SPEARS, H. N. (1955). **Injection of crystal violet swine fever vaccine in the ear.** —*Vet. Rec.* **67**, 408-409. **3647**

The routes of administration of crystal violet swine fever vaccine were investigated. I/d injection in the ear was considered impracticable under field conditions and the ensuing immunity was not durable because the dose that could be readily injected was too small. A small dose, i/d or s/c in the ear gave better protection than the same dose, s/c or i/m, in one of the usual sites. Immunity produced by s/c injection in the ear was better (though slower in onset) than in the case of the i/d route in the ear. A close relationship was noticed between the size of the dose and the duration of immunity.—T. E. GATT RUTTER.

PEHL, K.-H. & GOLDMANN, G. (1954). Untersuchungen über die Desinfektionswirkung von P₃-Präparaten (Persil-Werk, Genthin) gegenüber dem Virus der Schweinepest. [Disinfectant action of "P₃" detergents on swine fever virus.]—*Arch. exp. VetMed.* **8**, 753-758. **3648**

The authors tested the viricidal action of 5 of the "P₃" group of detergents (proprietary preparations containing alkali phosphates and silicates) on thin slices of kidney from pigs infected with swine fever. A 4% soln. of the 3 most effective of these detergents killed the virus after not less than 90 min. For safety it was necessary to extend this period to 120 min., which is the same time as that required for 2% sodium hydroxide soln. to kill the virus. For infected instruments, boiling remains the safest and most rapid method of sterilization.—R.M.

PATTERSON, W. C. & SONGER, J. R. (1955). **Experimental infections with vesicular exanthema. III. Viremia studies in swine and**

their relationship to vesiculation.—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 396-405. **3649**

Results of a series of viraemia studies in which inoculated animals were periodically bled and subinoculation made i/v or s/c into susceptible pigs. The period of viraemia in those inoculated i/v is 72-84 hours, commencing 48 hours before the appearance of the vesicles and ending 36 hours later. Varying the size of the infective dose given i/v altered the time when vesicles were formed but had no effect upon the period of viraemia.

Meat scraps from diseased pigs slaughtered within 7 days after i/v inoculation were infective when fed to susceptible pigs, producing either clin. cases or immunity—but not scraps from carcasses of pigs slaughtered 14 days or a month after inoculation.—W. E. PARISH.

THOMAS, J. (1954). La pneumonie à virus du porc. Sa présence en Belgique. [*Porcine virus pneumonia (V.P.P.) in Belgium.*]—*Ann. Méd. vét.* **98**, 495-517. **3650**

T. has established the presence of V.P.P. in Belgium. He gave a useful summary of the known characters of the disease but reported no new fundamental work.—J. T. DONE.

TERPSTRA, J. I. (1954). Hoestende varkens. (Viruspneumonie der varkens.) [*Virus pneumonia of swine.*]—*Tijdschr. Diergeneesk.* **79**, 671-678. **3651**

T. passed the disease in pigs by the intranasal instillation of penicillin-streptomycin-treated lung suspensions or of filtrates. The disease differed from swine influenza in that the virus was demonstrable even in chronic cases and that no immune bodies were produced.

—C. A. VAN DORSSEN.

DINTER, Z., BAKOS, K. & BJÖRKLUND, N.-E. (1954). Ueber das Verhalten des Virus der enzootischen Pneumonie der Schweine in der Lunge dieser Tierart. [*Behaviour of the virus of swine influenza in the lungs of pigs.*]—*Mh. Tierheilk.* **6**, 21-30. **3652**

Following infection, multiplication of virus produces at first a diffuse interstitial pneumonia, chiefly in the anterior lobes of the lungs, followed 8-12 days later by a purulent bronchopneumonia. The virus titre, however, is the same in the affected and unaffected parts of the lungs, indicating that the purulent pneumonia is caused by secondary invaders.—H. BEHRENS.

LARIN, N. M. & HODGMAN, S. F. J. (1954). **A modern approach to canine virus distemper**

and its practical application.—*Vet. Rec.* **66**, 339-343. Discussion pp. 343-348. **3653**

A detailed account of the research work which has been done in the field of the canine distemper virus. Particular attention is given to the possible classification of the distemper strains. The method of immunization to be adopted should be decided according to the individual case.—W. MANSI.

MANTOVANI, A. (1954). Sulla prova di neutralizzazione del virus di Carré in embrione di pollo. [*Distemper virus neutralization test in chick embryos.*]—*Riv. Med. vet., Parma*. **6**, 289-302. [English and French summaries.] **3654**

The virus neutralization test in chick embryos can be used successfully in the diagnosis of distemper, but its application is limited to non-fatal cases, since the serum must be taken both in the initial phase and in the convalescent phase. In practice, therefore, the test will probably be used only for the estimation of the efficiency of vaccines.—I. W. JENNINGS.

MANTOVANI, A. (1955). Ulteriori ricerche sulla curva di sviluppo del virus del cimurro del cane in embrione di pollo. [*Growth curve of distemper virus in the chick embryo.*]—*Vet. ital.* **6**, 713-721. [English, French and German summaries.] **3655**

M. studied the growth of two strains of distemper virus on chick embryo with special reference to the quantity of virus produced by a single dose of inoculum and the relationship between the dose of inoculum and total development of virus. [See also *V.B.* **24**, 2357.]

—T. E. GATT RUTTER.

KOBER, U. (1954). Die Schutzwirkung der Riemser Adsorbatvaccine gegen die Hundestaupe unter den Bedingungen der Praxis. [*An adsorbate distemper vaccine.*]—*Arch. exp. VetMed.* **8**, 486-505. **3656**

A formalized adsorbed distemper vaccine was tested in 225 young, individually owned dogs in Berlin, exposed to infection under natural conditions. They were given 2 doses of 1-10 ml. of vaccine according to size and kept under observation for periods up to 2 years. Two hundred remained healthy, 8 died from distemper, 2 from other causes; the remaining 15 later developed more or less severe forms of the disease but recovered.

Of 100 other dogs similarly vaccinated 96 remained healthy; two failed to develop immunity and became infected—one of these had to be killed. The remaining two left the district shortly after immunization.—E.G.

DELAVILLE, M. & THIERY, G. (1954). Autotransfusion du sang irradié par les rayons ultraviolets sur les chiens atteints de maladie de Carré. Action de l'ozone sur le virus de Carré du chien et sur le virus de la myxomatose du lapin. [*Autotransfusion of ultra-violet-irradiated blood into dogs with distemper. Action of ozone on distemper and on myxomatosis virus.*]—*Ann. pharm. franç.* **12**, 190-193. **3657**

Blood was pumped for 30-45 min. from the carotid artery of the anaesthetized dog through a quartz tube, exposed to ultra-violet light, and returned *via* the jugular vein. Using this technique, the authors claimed to have cured 6 dogs with the nervous form of distemper by a single treatment. The mode of action of this treatment, which the authors assumed to have a viricidal action, was apparently not the result of ozone formation in the irradiated blood, because blood treated with ozone had no beneficial effect on a dog with distemper nor on a rabbit with myxomatosis.—R.M.

CHERNYAK, V. Z., KUPRITE, O. A. & VLASOVA, L. P. (1955). [*Infectious hepatitis of dogs.*]—*Veterinariya, Moscow*. **32**, No. 4, pp. 59-62. [In Russian.] **3658**

Virus hepatitis of dogs does not seem to be so uncommon as often thought. Mostly puppies are affected, but dogs of every age are susceptible. The illness lasts 2-4 days, with fever and thirst, haemorrhages on the gums and enlargement of the tonsils. Sudden death without clinical illness may occur. The most frequent P.M. findings are enlargement of the gall-bladder and the presence of a haemorrhagic exudate in the peritoneal cavity. There is oedema in many organs, and petechiae are found on serous and mucous membranes. Characteristic histological findings include a haemorrhagic hepatitis with intranuclear eosinophilic inclusion bodies, mainly in the liver cells, but also in the endothelium of blood vessels.—A. MAYR-HARTING.

GORHAM, J. R. & HARTSOUGH, G. R. (1954). *Virus diseases of mink.*—*Proc. 91st Ann. Meet. Amer. vet. med. Ass., Seattle*, 1954. pp. 244-247. **3659**

A general account of distemper and "infectious enteritis" in mink.

—T. E. GATT RUTTER.

SANCHEZ BOTIJA, C., ARROYO, C. & BLANCO, A. (1954). Identificación de la mixomatosis del conejo en España. [*Myxomatosis in*

rabbits in Spain.—*Rev. Patron. Biol. anim.* **1**, 75-77. **3660**

The authors confirm the appearance of myxomatosis in the domestic rabbit in Spain. The disease occurred in a single rabbit in a small rabbitry and did not appear to spread. Virus was isolated by inoculation of rabbits with a suspension of brain and of cutaneous nodules from the infected rabbit. Typical myxomatosis was produced and the virus was passaged through five rabbits.—H. E. HARBOUR.

JACOTOT, H., VALEE, A. & VIRAT, B. (1955). Stabilité relative du pouvoir pathogène du virus du myxome infectieux. [The stability of the pathogenicity of myxomatosis virus.]—*Ann. Inst. Pasteur.* **88**, 234-236. **3661**

Experimentation confirmed other authors' work on the stability of the pathogenicity of the virus of myxomatosis. Virus inoculated into a vaccinated rabbit and into a hare and later recovered from these animals' tissues was found to be still fully pathogenic for susceptible rabbits. The virulence of field strains, recovered two years after the original epizootic in France, was found to be undiminished.

—M. B. HAWKSLEY.

GINDER, D. R. (1955). Resistance to fibroma virus infection. The role of immune leukocytes and immune macrophages.—*J. exp. Med.* **101**, 43-58. [Author's summary slightly modified.] **3662**

Leucocytes and macrophages, obtained from fibroma-immune rabbits and added to immune serum-fibroma virus mixtures, significantly increased the neutralization of fibroma virus as compared with immune serum alone. Immune cell suspensions from peritoneal exudates, regional lymph nodes, heart blood, spleen, and liver were all effective in inhibiting the virus. Approx. 2,000 to 4,000 immune cells per cu. mm. were necessary to cause an effect but no particular cell type could be implicated as responsible for the inhibiting of the virus. Normal cells did not consistently and significantly inhibit the virus and cells from rabbits immunized with other viruses did not inhibit it.

Studies of the mechanism of this action revealed that: (a) living cells were essential; (b) normal cells, sensitized with immune serum, did not simulate the effects of immune cells; (c) immune cells contained less pre-formed neutralizing antibody than an equivalent volume of immune serum, and (d) inhibition of fibroma lesions was not the result of viral interference.

... G. suggested that the fibroma-neutralizing effect of immune cells is related to intracellularly

placed antibody or to cellular transfer of an ability to form specific antibody in recipient animals.

HALLAUER, C. & KRONAUER, G. (1954). Zur Klassifikation der Geflügelpeststämme. II. Vergleichende Studien mit klassischen und atypischen Virusstämmen, mit besonderer Berücksichtigung des Virus N (Dinter). [Classification and comparison of strains of fowl plague and Newcastle disease viruses with special reference to the "virus N" described by Dinter.]—*Arch. ges. Virusforsch.* **5**, 441-482. **3663**

Certain properties of 5 strains of fowl plague virus were compared with those of 14 strains of Newcastle disease virus and of "virus N" [see *V.B.* **20**, 3019]. Fowl plague virus will agglutinate the erythrocytes of a larger number of species with a more stable antigen-antibody union, than N.D.V. "Virus N" is considered a variant of fowl plague virus, but it is less pathogenic to chick embryos, killing them in 1-5 days, and the infection tends to remain more localized. Only "virus N" elicits the "self-interference phenomenon" and it loses its pathogenicity after the 50th egg passage.—W. G. SILLER.

SALYI, G., HODOSY, J. & HIRT, G. (1955). A megszokottól eltérő jellegű baromfipestis-járványok. [Outbreak of a nervous form of Newcastle disease in Hungary.]—*Mag. állator. Lapja.* **10**, 154-158. [English and Russian summaries. Abst. from English summary.] **3664**

An account of two outbreaks of Newcastle disease characterized by the predominance of nervous symptoms and caused by virus of low virulence.—R.M.

I.—WALKER, R. V. L. & MCKERCHER, P. D. (1954). Studies in Newcastle disease. IX. Further investigation of the carrier problem.—*Canad. J. comp. Med.* **18**, 431-432. **3665**

II.—WALKER, R. V. L., MCKERCHER, P. D. & BANNISTER, G. L. (1954). Studies in Newcastle disease. X. The barn rat as a carrier of infection.—*Ibid.* 433-435. **3666**

I.—Newcastle disease virus was demonstrable in bone marrow and gonadal tissues of fowls for 40 days after exposure, but not from other sites for longer than 30 days. Throat swabs were positive 21 days after exposure but not later. Healthy hens housed with cockerels 34 days after the cockerels had been infected failed to become infected.

II.—The common rat was shown to be shedding active Newcastle disease virus in excreta over a 72-hour period following the eating of infected chickens. The rats were killed from the seventh day onwards and none showed the presence of virus, indicating that they had acted as mechanical carriers.

—R. GWATKIN.

ACOCCELLA, M. (1955). Sulla termostabilità del potere emoagglutinante del virus della pseudopeste aviare. [Thermostability of the haemagglutinating property of Newcastle disease virus.]—*Vet. ital.* **6**, 699-712. [English, French and German summaries.] **3667**

The author studied the heat resistance of the haemagglutinin of various strains of N.D.V. At 52° C. he could distinguish heat-stable from heat-labile strains. Addition of phosphates or of sodium citrate reduced heat resistance.

—T. E. GATT RUTTER.

NANDI, S. N. (1955). Selective breed pathogenicity of the Ranikhet disease virus-vaccine—a preliminary report.—*Indian vet. J.* **31**, 271-279. **3668**

From field vaccination reports, and also in controlled tests, the Newcastle disease vaccine prepared in Calcutta was found to be much more virulent for White Leghorn chicks than for Rhode Island Red chicks. This selective virulence was attributed to the vaccine having been prepared from only W.L. eggs throughout the 11 passages since the strain was obtained from Izatnagar.—R. N. MOHAN.

LULIC, V. (1955). O hiperimunom serumu atipicne kuge peradi. [Hyperimmune Newcastle disease serum.]—*Vet. Glasn.* **9**, 13-24. [In Croat. Abst. from English summary.] **3669**

Hyperimmune Newcastle disease serum produced from fowls and turkeys had a greater protective value than that produced from horses, pigs or sheep. Serum treatment of fowls in 29 naturally-infected flocks gave good results.—R.M.

JANSEN, J. & V. D. VLERK, J. (1954). Over de waarde van een dubbel-vaccin, bestemd voor gelijktijdige immunisatie tegen pokken-diphtherie en pseudovogelpest. [Value of a vaccine for simultaneous immunization against fowl pox and Newcastle disease.]—*Tijdschr. Diergeneesk.* **79**, 576-578. [English, French and German summaries.] **3670**

The authors tested a commercial preparation recommended for simultaneous i/m vaccina-

tion against both fowl pox and Newcastle disease. The preparation under test immunized against Newcastle disease but not against fowl pox.—C. A. VAN DORSSEN.

FAHEY, J. E. & CRAWLEY, J. F. (1955). Studies on chronic respiratory disease of chickens. V. Air-borne spread of the CRD agents.—*Canad. J. comp. Med.* **79**, 53-56. **3671**

The virus of chronic respiratory disease and the associated pleuropneumonia-like organisms (PPLO) were transmitted by inhalation. PPLO could be isolated throughout the entire clinical course but the virus only during the initial stages. When natural infective material was employed, haemagglutination-inhibiting antibodies were first noted at 19 days and all were positive at 32 days. With PPLO some birds were positive at 8 weeks but 8 of 20 were still negative at 13 weeks. In naturally infected birds, where the virus is present, titres were regularly 1:80 or greater but with PPLO the maximum titre was 1:20.—R. GWATKIN.

I.—KONRAD, J. & STRAUSS, J. (1955). Vyskyt ornithosy—nové formy atypické pneumonie v Československu. [Occurrence of psittacosis—a new form of atypical pneumonia, in Czechoslovakia.]—*Cas. Lék. ces.* **94**, 413-423. [English and Russian summaries.] **3672**

II.—TROJAN, J. A. & STRAUSS, J. (1955). Vyskyt ornithosy mezi zamestnanci druzebárského kombinátu a pokusy o jeho virologický průkaz. [Occurrence of psittacosis in poultry farm employees in Czechoslovakia and demonstration of virus.]—*Ibid.* 423-430. [English and Russian summaries.] **3673**

III.—TOUSEK, M. & MARSALEK, E. (1955). Ornithosa. [Psittacosis.]—*Ibid.* 430-438. [Russian summary.] **3674**

I.—An account of an outbreak of psittacosis in Czechoslovakia in employees of a large poultry establishment where fowls, turkeys, ducks and geese were kept. The disease in man appeared to have originated from contact with latently infected ducks and responded to chlortetracycline (aureomycin) and chloramphenicol treatment.

II.—A historical account of psittacosis in Czechoslovakia. Since 1949 there had been 87 human cases, all in poultry farm personnel. The virus was isolated from sputum of human patients.

III.—A general account, followed by case histories of 10 poultry farm employees. Macroscopically there were no changes observable in organs of ducks, nor were there any deaths in ducks ascribable to the disease.—E.G.

DI DOMIZIO, G. (1955). Contributo allo studio delle lesioni anatomoistopatologiche da virus del gruppo psittacosi ornitosi in animali: pappagalli, cocorite, agnelli. [*Lesions caused by viruses of the psittacosis group in parrots, budgerigars and lambs.*—*Arch. Vet. Ital.* **6**, 9-17. [English, French, Spanish and German summaries.] **3675**

An account of the macroscopic and microscopic lesions in natural infections caused by viruses of the psittacosis group in parrots and budgerigars and in lambs. The organism was demonstrated serologically and by animal inoculation.—T. E. GATT RUTTER.

GORET, P. & JOUBERT, L. (1955). Le diagnostic sérologique des maladies animales à ultra-virus. [*Serological diagnosis of the virus diseases of animals.*—*Rev. Path. comp.* **55**, 591-608. Discussion: 626-629. [English and Spanish summaries.] **3676**

A general account of serological methods of diagnosis of virus diseases of animals.

—T. E. GATT RUTTER.

YOFFEY, J. M. (1954). The mobile cells of the mesenchyme and the transport of virus.—*Gaz. méd. portug.* **7**, 38-42. [In English.] [Abst. from Abst. in *Bull. Hyg., Lond.* **29**, 1266. (1954).] **3677**

Y. reviewed the evidence for transport of virus through the body by mobile mesenchymal cells, particularly lymphocytes entering the blood from infected lymph nodes. In polio-

myelitis in man the virus has been found in mesenteric, axillary and inguinal lymph nodes [*Bull. Hyg., London.* **27**, 117] and in blood, though it is absent from plasma.

I.—GIBERT, P. (1955). Recherches à propos de la fièvre Q dans l'espèce ovine. [*Research on Q fever in sheep.*—*Rev. Méd. vét.* **106**, 289-298. **3678**

II.—GIBERT, P. (1955). Recherches à propos de la fièvre Q dans l'espèce bovine. [*Research on Q fever in cattle.*—*Ibid.* 299-304. **3679**

I.—Serological examination of sheep in a single Department of France revealed evidence of *Rickettsia burneti* infection in 20% of those tested. Clinical manifestations of disease attributed to the infection included abortions, broncho-pneumonia and ocular infections.

II.—Serological examination of cattle in the same Department revealed evidence of *R. burneti* infection in 28%. Abortions and broncho-pneumonia occurred in cattle in the same herds, but the relationship to *R. burneti* infection was doubtful. No ocular lesions were found in any of the cattle.—M. B. HAWKSLEY.

PHILIP, C. B. (1955). There's always something new under the "parasitological" sun (the unique story of helminth-borne salmon poisoning disease).—*J. Parasit.* **41**, 125-148. **3680**

P. discussed "salmon poisoning disease" of dogs—caused by a rickettsia-like organism transmitted by the helminth *Nanophyetus salmincola* through the salmon to the dog.

—T. E. GATT RUTTER.

See also absts. 3765 (contagious diseases in farm animals); 3766-3767 (diseases of livestock in French Guiana); 3771 (common antigenic fraction to Brucella and *R. burneti*); 3887-3888 (reports, Scotland); 3889 (report, Basutoland); 3892-3893 (reports, U.S.A.); 3894 (Gaiger-Davies's veterinary pathology and bacteriology); 3895 (book, viruses).

IMMUNITY

JENNINGS, R. K. (1954). Diffusion-precipitin studies of the complexity of antigen mixtures. I. The nature of bovine antigens in Dick toxin. II. The number of zones formed by one antigen.—*J. Bact.* **67**, 559-564 & 565-570. **3681**

I & II.—Results of flocculation, double diffusion, and Oudin studies indicate that the hypothesis that the number of zones in an Oudin tube does not exceed the number of antigens involved cannot be relied on in demonstrating the complexity of unknown preparations. The behaviour of beef heart infusions appeared to be best explained by assuming that the antigens it contains are actually all one and the same molecule which possesses several specific determinant groups capable of stimulating

the production of several antibodies and reacting with them specifically. It is suggested that, in the Oudin tube, antigen after reacting with one antibody for which it bears a specific determinant group, might still diffuse to form a gradient of concentration beyond the line of visible precipitate from the first reaction so that equivalence with a second more dilute antibody, by virtue of a second specific determinant group, might lead to the formation of a second Oudin zone.

—A. ACKROYD.

JOHNSON, A. G., WATSON, D. W. & CROMARTIE, W. J. (1955). Effect of massive antigen dosage on antigen retention and antibody response in rabbits.—*Proc. Soc. exp. Biol., N.Y.* **88**,

421-427. [Authors' summary copied verbatim.] **3682**

Antigen elimination rates for massive doses of bovine albumin from the circulation of rabbits were resolved into two relative groups: (a) those eliminating the antigen rapidly, and (b) those retaining residual antigen for an extended period. All antibody-forming sites were assumed to be saturated with this antigen, and in the latter group antibody formation was suppressed. Data are presented suggesting that the breakdown and/or removal of an antigen from an antibody-forming site may be a necessary prerequisite to antibody formation. The rates of elimination of antigen from the various organs of the host are discussed in relation to postulated mechanisms concerned with serum sickness and the late sequelae of streptococcal infections.

MAYER, M. M. & LEVINE, L. (1954). Kinetic studies on immune hemolysis. III. Description of a terminal process which follows the Ca^{++} and Mg^{++} reaction steps in the action of complement on sensitized erythrocytes. IV. Rate determination of the Mg^{++} and terminal reaction steps.—*J. Immunol.* **72**, 511-515 & 516-530. **3683**

The action of complement on sensitized erythrocytes is followed by a terminal reaction leading to the production of ghosts and free haemoglobin. The haemolytic reaction thus takes place in at least three successive stages: Ca^{++} step; Mg^{++} reaction; terminal intrinsic transformation.

Rate of reaction in the limited antibody system is controlled by the Ca^{++} step. In the limited complement system the Mg^{++} step is the pace-making reaction.—W. R. BETT.

GOODMAN, M., WOLFE, H. R. & GOLDBERG, R. (1954). Precipitin production in chickens. XII. The effects of variation in ionic species and concentration on precipitate formation.—*J. Immunol.* **72**, 440-445. **3684**

At low ionic strength (up to 0.26) precipitation is larger in iodide medium than in other ionic media. Above 0.26, precipitation decreases in the iodide and thiocyanate media. Maximal precipitation in various sodium salts occurs at high ionic strengths (1.5) of chloride and sulphate.—W. R. BETT.

CLAYTON, R. M. (1954). Localization of embryonic antigens by antisera labelled with fluorescent dyes. [Correspondence.]-*Nature, Lond.* **174**, 1059. **3685**

By treating sections of the eye of a week-old mouse with a mixture of muscle and lens antisera, each coupled to a different fluorescent dye, specific tissue antigens during the course of development could be localized.

—A. ACKROYD.

VOLK, V. K., TOP, F. H. & BUNNEY, W. E. (1954). Significance of "cysts" following injections of antigens.—*Amer. J. publ. Hlth.* **44**, 1314-1325. **3686**

In 3,464 persons immunized with multiple antigen preparations, an antigen cyst, the abscess-like reaction occurring at the site of antigen inoculation, was more likely to occur after a 1 ml. subcutaneous injection in adults sensitized to bacterial protein by previous inoculation against diphtheria and already possessing a high degree of immunity.

—A. ACKROYD.

SHILO, M., WOLMAN, B. & HESTRIN, S. (1954). Restriction of inflammatory response by polysaccharides.—*Nature, Lond.* **174**, 786-787. **3687**

The inflammatory lesions produced in g. pigs by intradermal inoculation of peptone, turpentine or staphylococci were inhibited by previous intramuscular injection of a high-molecular bacterial polysaccharide (laevan). Experiments in rabbits suggested that the laevan masked local capillary injury.—A. B. PATERSON.

I.—JACOB, S., WEIZEL, H., GORDON, E., KORMAN, H., SCHWEINBURG, F., FRANK, H., FINE, J. (1954). Bacterial action in development of irreversibility to transfusion in hemorrhagic shock in the dog.—*Amer. J. Physiol.* **179**, 523-531. **3688**

II.—SCHWEINBURG, F. B., FRANK, H. A. & FINE, J. (1954). Bacterial factor in experimental hemorrhagic shock. Evidence for development of a bacterial factor which accounts for irreversibility to transfusion and for the loss of the normal capacity to destroy bacteria.—*Ibid.* 532-540. **3689**

I & II.—When administered orally or intravenously a few hours before the shock was produced, chlortetracycline (aureomycin), oxytetracycline (terramycin), neomycin and penicillin were effective in prolonging the capacity of dogs to sustain a severe degree of haemorrhagic shock, and in lowering the mortality rate from 80 to 40%. Suppression of the intra-intestinal flora did not prevent the development of irreversibility to transfusion. Failure of the dog in haemorrhagic shock to

recover appeared to be associated with the development of a bacterial factor in the tissues as a result of the loss of the normal dog's

capacity to inhibit bacterial activity, the impairment developing within 2 hours after the onset of shock.—A. ACKROYD.

See also absts. 3497 (neutralization of staphylococcal enterotoxin by rabbit antiserum); 3504 (vegetable *Pneumococcus* antigens); 3505-3506 (anthrax); 3511-3515 (TB.); 3517-3518 (turkey erysipelas); 3519 (swine erysipelas); 3532 (effect of vitamin B₁₂ on *S. pullorum* agglutinin production in rabbits); 3538-3551 (brucellosis); 3561 (vibriosis); 3564 (*C. albicans* antibodies); 3568 (turkey sinusitis); 3589-3590 (anaplasmosis); 3594-3612 (F. & M. disease); 3621-3622 (rabies); 3624 (vaccinia); 3625-3626 (sheep pox); 3631 (Borna disease); 3634-3637 (rinderpest); 3645-3647 (swine fever); 3712-3713 (trichinella); 3771 (common antigenic fraction to *Brucella* and *R. burneti*); 3783 (platelet agglutinins and lysins in purpura).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

I.—DU TOIT, R. & FIEDLER, O. G. H. (1954).

The protection of sheep against blowfly strike.

II. The influence of the length of wool at the time of treatment on the duration of protection.

—Onderstepoort J. vet. Res. 26, 405-408. 3690

II.—FIEDLER, O. G. H. & DU TOIT, R. (1954).

The protection of sheep against blowfly strike.

III. The effect of different formulations of gamma benzene hexachloride (B.H.C.).—*Ibid.*,

409-426. [For part I, see V.B. 24, 137.] 3691

I.—Groups of sheep, with wool of a staple length of a quarter to one and a quarter inches, were treated with a suspension of 0.5% benzene hexachloride.

Study of the insecticidal effect of the treated wool on the larvae of *Lucilia cuprina* *in vitro* indicated that the length of the staple influenced the residual protection afforded by the insecticide against fly-strike, giving an increase of two and a half weeks' protection per quarter inch of wool.

II.—Two groups of 12 sheep were dipped in 120 gal. of an emulsion or suspension of 0.1% γ -isomer B.H.C. A third group was treated with a 10% γ -isomer dusting powder. Using an *in vitro* test, a larvicidal effect of 27-30 weeks against the first stage maggots of *L. cuprina* was observed. The dusting powder gave the longest residual effect. A more rapid depletion of insecticide was found to occur with the emulsion than with the suspension dip.

—D. W. JOLLY.

LUHRS. (1955). Einfluss der Temperatur auf den Dasselbefall. [Effect of environmental temperature on infestation with *Hypoderma* larvae.]—*Dtsch. tierärztl. Wschr.* 62, 185-189. 3692

Figures compiled over a period of years show that *Hypoderma* infestation reaches a peak in May and remains at roughly the same level until August. Graphs giving the average temperatures and rainfall for these peak months compared with the extent of the infestation in the subsequent winter months, show that there is no correlation between the May temperature and the November infestation, but by December the warble curve decreases if the temperature in

May has been low. Temperature and climatic conditions in the early summer of a given year thus influence the number of warble flies appearing during the following year.

—M. L. CLARKE.

SCHWARTZ, B., PORTER, D. A. & HERLICH, H.

(1954). Effects of free-choice ingestion of phenothiazine on the incidence of cattle grub,

Hypoderma lineatum.—*Vet. Med.* 49, 405-408. 3693

In groups of three and six calves, allowed free access to a phenothiazine-treated mineral mixture a total of 60 warbles occurred over a period of two years. The average daily intake of phenothiazine ranged from 0.1 to 3 g. In two similar groups of calves kept under identical conditions, and allowed the mineral mixture without phenothiazine, a total of 298 warbles occurred. A larvicidal effect by absorbed phenothiazine, or its metabolites, is suggested as the cause of the reduction in the number of warbles in the treated groups.—D. W. JOLLY.

TRAVASSOS SANTOS DIAS, J. A. (1954). Some considerations about the control of *Glossina austeni* Newst. based on the knowledge of its ecology.—*Proc. 5th Meet. Int. sci. Comm. Trypanosomiasis Res.*, 1954. B.P.I.T.T. Publ. No. 206. pp. 148-155. [English translation.] 3694

G. austeni, preferring a forest habitat, may be eliminated by systematic bush clearing.

—JAS. G. O'SULLIVAN.

DU TOIT, R., KLUGE, E. B. & FIEDLER, O. G. H. (1954). The eradication of *Glossina pallidipes* from Zululand by chemical means.—*Proc. 5th Meet. Int. sci. Comm. Trypanosomiasis Res.*, 1954. B.P.I.T.T. Publ. No. 206. pp. 141-147. 3695

Aerosol dispersal of benzene hexachloride by means of aircraft exhaust eliminated *G. pallidipes* in Zululand. The authors discussed the possibility and the cost of the eradication of *G. palpalis* by similar means.

—JAS. G. O'SULLIVAN.

MENON, P. B. (1954). A new species of Hymenoptera—*Telonemus* sp. n.—parasitising eggs of *Tabanus* flies.—*Indian vet. J.* **31**, 205. 3696

Eggs of *Tabanus* collected in the district around Bareilly (northern India) were found to be parasitized by small hymenopterous insects—reported by the Commonwealth Institute of Entomology to be a new species of *Telonemus*. M. recalled a similar earlier record by Isaac (1924) of a scoleonid parasitizing and killing *Tabanus* eggs at Pusa—also in northern India.

—R. N. MOHAN.

HITCHCOCK, L. F. (1955). Studies on the parasitic stages of the cattle tick, *Boophilus microplus* (Canestrini) (Acarina : Ixodidae).—*Aust. J. Zool.* **3**, 145-155. 3697

From single applications of large cultures of larvae to cattle the duration of the various parasitic stages was determined. Climate had little effect on the duration of these stages on cattle. A diurnal rhythm in the fall of engorged ticks and a considerable natural mortality of all stages was demonstrated. H. discussed the importance of the life history studies in relation to toxicological work.

LUCAS, J. M. S. (1954). Fatal anaemia in poultry caused by a heavy tick infestation.—*Vet. Rec.* **66**, 573-574. 3698

An acute anaemia, with three deaths, was observed in a flock of 21 fowls carrying a heavy tick infestation (*Haemaphysalis* and *Rhipicephalus* species). A count of 2,082 ticks, of which 85% were adults, was made on one hen. The infestation was controlled by an initial application of 0.8% chlorinated camphene used as an emulsion, followed by weekly spraying with a 0.3% emulsion.—D. W. JOLLY.

MENON, P. B., SEN GUPTA, C. M. & BASU, B. C. (1954). Feeding of organic insecticides to chicken and its effect on the control of *Argas persicus* (Oken).—*Indian vet. J.* **30**, 283-288. 3699

Mortality in *A. persicus*, fed overnight at intervals up to the fourth night on 6-month-old chickens that had previously been given technically pure toxaphene (chlorinated camphene) at 0.25-0.5 g./kg. in gelatin capsules, was 73-100% in the following week. "Lethane B71" and "rhothane D3" (proprietary insecticides), in comparable dosage, proved highly toxic for chickens and killed fewer ticks.

—R. N. MOHAN.

LAKE, E. W. (1953). Torsalo and tick control with toxaphene in Central America.—*J. econ. Ent.* **46**, 454-458. 3700

Dermatobia hominis (torsalo) and *Boophilus microplus* were effectively controlled using either a 0.5% toxaphene emulsion applied to cattle as a spray or a conc. of 0.37% toxaphene as a dip. When this treatment was repeated at intervals of 14 days there was a 95% reduction in the number of larvae of *D. hominis* on the backs of the cattle, and complete protection against *B. microplus*.—D. W. JOLLY.

KEMPER, H. E. (1955). Psoroptic cattle scabies outbreak in 1954.—*Proc. 58th Ann. Meet. U.S. live stk sanit. Ass., Omaha, 1954.* pp. 288-295. 3701

Details are given of an outbreak of psoroptic mange in cattle in the U.S.A. where the disease had not been reported since 1946. The origin of the outbreak is unknown, but the possibility of cross-transmission of *Psoroptes equi* from sheep is mentioned, with reference to earlier work in which natural cross-transmission occurred and was maintained on cattle. Mites from these cattle subsequently produced the disease when transplanted to both sheep and cattle.

Cases were treated by double spraying or dipping at 10-14 days' interval with 0.075% γ -isomer of wettable benzene hexachloride. Examination of advanced cases 30-40 days later showed recession of the lesions and absence of mites. Toxic symptoms and some losses occurred in emaciated cattle 6 months to 2 years old, and in these beasts symptoms occurred with all concentrations used from 0.04-0.09% γ -isomer.—W. E. PARISH.

ALLAN, J. (1955). Loss of biological efficiency of cattle-dipping wash containing benzene hexachloride. [Correspondence].—*Nature, Lond.* **175**, 1131-1132. 3702

The loss of biological efficiency was due to the action of bacteria on the γ -isomer of benzene-hexachloride. The growth of anaerobes was accompanied by substantial destruction of the insecticide. Probably the hydrogen produced by the bacteria brought about dechlorination of the γ -isomer and to a slight extent of the α -isomer.—JAS. G. O'SULLIVAN.

SINKOVIC, B. & ROBINSON, M. (1955). *Epidermoptes bilobatus* in turkey poults.—*Aust. vet. J.* **31**, 98-100. 3703

This appears to be the first record of the occurrence of the mite *E. bilobatus* in Australia. Details of the outbreak and a description of the symptoms are given.—M. D. MURRAY.

SMITH, W. W. (1955). The abundance and distribution of the ectoparasites of the house

mouse in Mississippi.—*J. Parasit.* **41**, 58-62. **3704**

Four species of fleas (*Xenopsylla cheopis*, *Leptopsylla segnis*, *Nosopsylla fasciatus* and *Echidnophaga gallinacea*), the louse *Polyplax spinulosa* and 15 species of mites were found on house mice in Mississippi. S. gave details regarding their abundance and distribution.

—JAS. G. O'SULLIVAN.

See also absts. 3578 (vectors of trypanosomiasis); 3732 (*Stomoxys* as vector of *Setaria*); 3887-3889 (reports, Scotland).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

GORDON, H. McL. (1955). Fascioliasis, with particular reference to acute fluke disease.—*Aust. vet. J.* **31**, 46-47. **3706**

G. describes the extent of fascioliasis in Australia, and the distribution of the intermediate host snail, *Simlimnaea subaquatilis*. *Fasciola hepatica* is responsible for three major ovine diseases in Australia, namely, acute and chronic fascioliasis and black disease, all of which are described. Control measures are briefly discussed. Aspects of the problem requiring further study are outlined.

—R. I. SOMMERVILLE.

KEOGH, J. (1955). Fascioliasis in South Australia.—*Aust. vet. J.* **31**, 48-50. **3707**

The geographical distribution of fascioliasis is outlined.

The Lower Eyre Peninsula, although providing suitable conditions for *Fasciola hepatica*, is completely free.

Consequent on the exclusion of sea water from the Murray River and Lake system the intermediate host, *Simlimnaea subaquatilis*, has invaded the marshy areas causing outbreaks of acute fluke infestation and of black disease.

—R. I. SOMMERVILLE.

VARMA, A. K. (1955). A simple method of breeding fresh-water molluscs in the laboratory.—*Indian J. med. Res.* **43**, 165-167. **3708**

The author describes a simple method of breeding, feeding and maintaining some fresh-water molluscs, particularly those belonging to the limnaeid group. They were found to feed well on the leaves of *Eichornia crassipes* and also the tender stem of *Ipomoea reptans*, which are plentifully available in India. A supply of clean oxygenated water is essential for these gastropods.—R. N. MOHAN.

VARMA, A. K. (1954). Human and swine gastrodiscoides.—*Indian J. med. Res.* **42**, 475-479. **3709**

NAIDU, M. B. (1955). Physiological action of drugs and insecticides on insects.—*Bull. ent. Res.* **46**, 205-220. **3705**

The action of various substances on the frequency of the beat of the isolated cockroach heart immersed in physiological solution was studied. Acetylcholine, adrenaline, nicotine and eserine accelerated the beat. The insecticides tested included pyrethrum, rotenone, and D.D.T.—JAS. G. O'SULLIVAN.

Comparison of specimens of *Gastrodiscoides* of human and of porcine origin and obtained from various sources revealed certain morphological differences between the two forms, mainly in the relative position of the testes and the general dimensions of the worms. The author discussed these findings, together with epidemiological data. He suggested that the form from pigs should be regarded as a distinct variety and proposed that it be named *G. hominis* var. *suis* var. nov. It had not previously been reported from Bihar. He also reported the occurrence of *Fasciolopsis buski* in human beings in the Saharsa district of Bihar.—R. N. MOHAN.

SANCHEZ BOTIJA, R. (1954). Sobre la presencia de la schistosomiasis ovina en España. [Ovine schistosomiasis in Spain.]—*Rev. Patron. Biol. anim.* **1**, 31-35. [French summary.] **3710**

Eight hundred sheep watered at pools containing snails of the genus *Planorbis* were affected with acute schistosomiasis, the first recorded outbreak in sheep in Spain. Another four hundred sheep in the same area, watered in a river, were unaffected. The disease was characterized by extreme cachexia and anaemia, with pneumonia in some cases. Large numbers of schistosome eggs were present in the gastrointestinal mucosa and in faeces.

—H. E. HARBOUR

RAO, S. R. & HIREGAUDAR, L. S. (1953). Schistosomiasis in elephants in Bombay State.—*Indian vet. J.* **30**, 241-242. **3711**

Schistosome eggs were found in faeces of six elephants of N. Kanara District. These eggs were nearly double the size of *Ornithobilharzia nairi* eggs described by Mudaliar & Ramanujachari [*V.B.* **18**, 513].

—R. N. MOHAN.

NORMAN, L., SADUN, E. H., REDDING, R. W.

& COOPERRIDER, D. E. (1955). Flocculation test in sera from hogs experimentally and naturally infected with *Trichinella spiralis*.—*J. Parasit.* **41**, 162-166. 3712

The flocculation test had limited applicability in the diagnosis of *T. spiralis* infestation of pigs.—T. E. GATT RUTTER.

STONER, R. D. & GODWIN, J. T. (1954). The effects of adrenocorticotrophic hormone and cortisone upon acquired immunity to trichinosis in mice.—*Amer. J. Path.* **30**, 913-918. 3713

Daily subcutaneous injections of cortisone markedly reduced the active immunity of mice against *T. spiralis* challenge infections, whilst adrenocorticotrophic hormone similarly administered had only a slight effect on immunity.

—E. J. L. SOULSBY.

WU, L.-Y. (1955). Studies on *Trichinella spiralis*. I. Male and female reproductive systems.—*J. Parasit.* **41**, 40-47. 3714

A re-description of the male and female reproductive systems of *T. spiralis*. A curious feature is that extrusion of the copulatory tube (into which enter the digestive and reproductive systems) through the cloaca forms the copulatory bell.—M. L. CLARKE.

SPINDLER, L. A. & ANDREWS, J. S. (1955). The swine kidneyworm, *Stephanurus dentatus*.—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 296-302. 3715

A general paper on the life cycle and control of *S. dentatus* including some hitherto unpublished observations that the infective larvae on the ground may survive for as long as 6 months. In experimental work, pigs fed massive doses of larvae died about a month later and living larvae were recovered from the spinal cord, brain, psoas muscles and walls of the ureters. It was also noted that pigs, 6-7 years old, excreted the largest number of eggs in the urine.—W. E. PARISH.

SOUTHCOTT, W. H. (1955). Observations on the removal of *Oesophagostomum columbianum* Curtice from sheep grazing on green oats and on pastures.—*Aust. J. agric. Res.* **6**, 456-465. [Author's summary modified.] 3716

Field trials in 1951 and 1952 confirmed previous observations on the evacuation of adult *O. columbianum* from sheep grazing continuously on green oats. Grazing on phalaris-subterranean clover or red clover pasture also resulted in the evacuation of some *O. columbianum* but was much less effective.

Evacuation of *O. columbianum* from sheep

on green oats was not complete and was associated with softening, and lowering of the pH, of the faeces. The phenomenon occurred both with and without a considerable increase in live-weight.

Some of the factors associated with oat-grazing which may influence removal of *O. columbianum* are discussed.

BAKER, N. F. (1954). Trichostrongylidosis—the mouse as an experimental animal.—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 185-191. Discussion: p. 192. [Abst. from author's summary.] 3717

An account of the gross and histopathological changes in mice following a single dosage with 400 infective larvae of *Nematospiroides dubius*, a trichostrongyloid parasite of the mouse. In many ways, the pathogenesis of infestation with this parasite is similar to that of infestation with trichostrongylids which are parasitic in domestic animals.

RATHORE, G. S., MATHUR, P. D. & SANKAR-NARAYAN, N. S. (1955). Haemonchosis in sheep in Rajasthan and its control.—*Indian J. vet. Sci.* **25**, 1-15. 3718

A survey was made of helminthiasis of sheep and goats in Rajasthan, India. The authors discussed the influence of geographical and environmental factors on *Haemonchus* infestation.

Experimental phenothiazine and copper sulphate treatment was undertaken in flocks of about 100 sheep in five heavily infested areas.

—M. L. CLARKE.

FOSTER, A. O., TURNER, J. H., KATES, K. C. & SINCLAIR, L. R. (1952). Control of *Nematodirus* infections of lambs by free-choice administration of phenothiazine.—*J. Parasit.* **38**, No. 4—Sect. 2. Suppl. p. 14. [Only abst. given. Abst. from abst.] 3719

Six lambs given free access to a 1:9 phenothiazine salt mixture withstood the effects of a mixed infestation of *Haemonchus* and *Nematodirus* as compared with 6 control lambs which succumbed. The use of phenothiazine to limit the *Haemonchus* infestation apparently prevented an exacerbation of the *Nematodirus* infestation in the treated animals, whereas in the controls the abomasal parasites deleteriously affected the course of the *Nematodirus* infestation.—E. J. L. SOULSBY.

HOLLO, F. (1955). Adatok a juhok göcös tüdőférgességének hazai elterjedtségéhez. [Lungworm infestation in sheep in Hungary.]

—*Mag. állator. Lapja*, **10**, 46-50. [English and Russian summaries.] **3720**

Verminous pneumonia was present in 120 out of 189 sheep slaughtered in poor bodily condition. The commonest infestation was *Dictyocaulus filaria* (75 out of the 189 cases), followed by combined infestation with *Protostrongylus* spp. and *Cystocaulus ocreatus* (41 cases). *Muellerius capillaris* was comparatively rare (8 cases). H. charted the distribution of lungworm lesions and found that they were most common in the diaphragmatic lobes of the lungs, and more common in the right lobe than in the left.—R.M.

MICHEL, J. F. (1954). Pulmonary oedema in sheep caused by immature lungworms.—*Vet. Rec.* **66**, 460. **3721**

A fatal pulmonary oedema, without premonitory symptoms, was observed in lambs 21 to 35 days after dosage with larvae of *Dictyocaulus filaria*. M. concluded that the occurrence of this syndrome was associated with the elimination of the worms. He presented evidence which indicated that deaths from this cause may be a common prelude to outbreaks of "husk".—D. W. JOLLY.

MICHEL, J. F. (1955). Parasitological significance of bovine grazing behaviour. [Correspondence.]—*Nature, Lond.* **175**, 1088-1089. **3722**

Samples of herbage taken immediately adjacent to freshly bitten grass harboured fewer larvae of *Dictyocaulus viviparus* than did random samples. There were also fewer larvae in samples taken from short recently grazed grass than in random samples. Bovine grazing behaviour thus appears to be parasitologically selective.—M. L. CLARKE.

VON STENGLIN. (1954). Darmparasiten bei Zuchthengsten. [Intestinal parasites in stallions.]—*Dtsch. tierärztl. Wschr.* **61**, 487-489. **3723**

Faecal egg counts of Thoroughbred and non-thoroughbred stallions recorded during a 6-year period showed more strongyle than *Ascaris* eggs in both groups, and non-thoroughbreds more heavily parasitized than Thoroughbreds. Effects of colour, breeding, age and feeding on infestations were investigated.

—M. L. CLARKE.

KERR, K. B. (1955). Age of chickens and the rate of maturation of *Ascaridia galli*.—*J. Parasit.* **41**, 233-235. [Author's summary and conclusions modified.] **3724**

The rate at which *A. galli* attain sexual maturity, as indicated by the recovery of viable ova from the faeces, was studied in chickens 12 to 90 days old. In chickens infected when less than 90 days old, viable ova were found 30-35 days after infection. In chickens infected when 90 days old, no mature ova were found earlier than 50 days after infection. The more rapid development of the nematode in the younger chicken has considerable significance for the broiler industry.

HANSEN, M. F., PETRI, L. H. & ACKERT, J. E. (1954). Effects of aureomycin and vitamin B₁₂ used separately as feed supplements on resistance of chickens to *Ascaridia galli* (Schränk).—*Exp. Parasit.* **3**, 122-127. [Authors' summary modified.] **3725**

Five hundred and twelve chicks were divided into 8 groups and fed an all-plant-protein basal diet. The ration for 6 of the groups was supplemented with chlortetracycline (aureomycin) or vitamin B₁₂, or a combination of both. Half of the chicks in each of the groups were given 100 ± 10 embryonated eggs of *A. galli*. The highest mortality rate and incidence of infestation occurred among the chicks fed only the basal ration, whereas there were no deaths and a much lower incidence of infestation among the chicks fed the supplemented basal ration.

The simultaneous use of aureomycin and vitamin B₁₂ significantly stimulated the growth of the chicks regardless of whether they were parasitized. However, in order to aid in obtaining additional growth responses from feeds fortified with these supplements, ascarids must be controlled.

Very small differences in feed efficiencies of the various diets were noted. There was some indication that infestation decreased the feed efficiency of the ration supplemented with a combination of aureomycin-vitamin B₁₂.

Whereas aureomycin and/or vitamin B₁₂ reduced the numbers of ascarids in the chicks, the aureomycin restricted the rate of growth of the ascarids and vitamin B₁₂ stimulated their growth. When these supplements were used together their effects on the growth of the worms was nullified.

KASCHULA, V. R. & MALHERBE, W. D. (1954). The incidence and diagnosis of spirocercosis in dogs in the Transvaal.—*J. S. Afr. vet. med. Ass.* **25**, 53-59. [Abst. from authors' summary.] **3726**

The authors described a method of flotation using zinc sulphate solution and glycerol

(sp.g. 1:32) for faecal examination of dogs for *Spirocerca lupi* infestation. Skin sensitivity and precipitin tests appeared to be of no value for diagnosis. In a survey of 100 dogs, mostly from the vicinity of Onderstepoort, using the former method, 20 were found to be infested with spirocerca. Most of these manifested no symptoms attributable to the infestation, but this condition is of importance in the differential diagnosis of intractable vomiting.

NISHIYAMA, S. (1953). [Demonstration of larvae of *Habronema* worms in skin ("summer sore") lesions in horses.]—*Jap. J. vet. Sci.* **15**, 211-226. [In Japanese. English summary.] **3727**

Twenty-five skin specimens from horses affected with "summer sores" in various prefectures of Japan were examined histologically. Larvae of *Habronema* were found in the corium of 4.—KOGI SAITO.

MOYNIHAN, I. W. & STOVELL, P. L. (1955). Parasitism of the swan by the nematode *Acuaria uncinata*.—*Canad. J. comp. Med.* **19**, 48-49. **3728**

Increasing difficulty was being experienced in raising swans to maturity. In the specimen in question, cachexia, emaciation and ruffled feathers were noted. Numerous nematodes had penetrated into the wall of the proventriculus, causing a chronic and proliferative inflammation. The worm was identified as *A. (Echinuria) uncinata* and the outstanding morphological features are described.

—R. GWATKIN.

VARMA, A. K. (1955). *Gnathostomiasis in a dog.* *Curr. Sci.* **24**, 57. **3729**

A note on *Gnathostoma* infestation in a dog in India. The ova were passed in the faeces in either the one-cell or the two-cell stage and embryos became fully developed at room temp. in 5-6 days and hatched a day or two later.—R. N. MOHAN.

RAMANUJACHARI, G. & ALWAR, V. S. (1954). Further observations on parafilariaasis (?) of elephants.—*Indian vet. J.* **31**, 206-209. **3730**

Unsheathed microfilariae were found in blood oozing from cutaneous nodules on several elephants working in Madras forests, but only fragments of one female worm containing embryonated eggs could be recovered. The affection was considered to be similar to parafilariaasis of bovine and equine animals.

—R. N. MOHAN.

PERUMAL PILLAI, C. (1954). "Kumri" (syn: Kamri) in horses associated with ocular setariasis with a short note on attempted treatment.—*Ceylon vet. J.* **2**, 92-94. **3731**

An immature female *Setaria digitata* was removed from the eye of an 8-year-old mare with weakness of the hind quarters (a condition known in India as "kumri"). Treatment with diethylcarbamazine acid citrate and "antimosan" had had no effect on the nematode. The author discussed the evidence for suggesting that "kumri" results from damage to the brain and spinal cord by larvae of *S. digitata*.

—M. L. CLARKE.

WILLIAMS, H. E. (1955). Studies on the bovine filariid *Setaria cervi* (Rudolphi, 1819).—*Parasitology.* **45**, 56-62. [Author's summary copied verbatim.] **3732**

Wild *Stomoxys calcitrans* flies were dissected in search of developmental larvae of *Setaria cervi* without success. *S. cervi* worms were implanted intraperitoneally into rabbits and live microfilariae were recovered from the blood. Morphological descriptions are given of the larvae from the blood of rabbits and of the adult worms taken from slaughtered cattle.

OCHI, Y. (1953). Studies on lumbar paralysis of sheep.—Tokyo: Bureau of Animal Industry. pp. 6. [In English.] **3733**

Studies in Korea in the years 1938-43 are described in which lumbar paralysis in sheep and goats was produced experimentally by inoculation of larvae of *Setaria digitata*. It was also determined that *S. marshalli* did not cause lumbar paralysis: it was commonly found in the peritoneal cavity of sheep and goats but never penetrated into the brain or spinal cord.

The normal host of *S. digitata* is the ox in which animal it is found in the peritoneal cavity.

The vectors of *S. digitata* are the mosquitoes *Anopheles sinensis hyrcanus* and *Armigeres obturbans*.

The disease is seasonal in occurrence.

GUILHON, J. (1954). Propriétés anthelminthiques de l'ester amylophénolique de l'acide propionique. [Anthelmintic properties of the amylophenolic-ester of propionic acid.]—*Bull. Acad. vét. Fr.* **27**, 113-115. **3734**

At 4.5 g. per kg. body wt. in pigeons the compound had some effect on *Ascaridia columbae* but none on *Capillaria columbae*. In dogs at 0.22 g. per kg. body wt. it had an action on *Toxocara canis* but none on *Ancylostoma caninum* or *Trichuris vulpis*. Ten grammes given to a 43 kg. sheep had no effect on the strongylid egg count/per g. of faeces.

—D. POYNTER.

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

KOVACS, K. & BACHRACH, D. (1954). Hypophysentumor bei einem Hund. [Tumour of the pituitary gland in a dog.]—*Zbl. allg. Path. path. Anat.* **91**, 473-475. **3735**

At P.M. examination of an old mongrel bitch, an unsuspected tumour was found in the pituitary gland—an adenoma, composed chiefly of chromophobe cells, but containing groups of acidophile and basophile cells. Since no normal anterior pituitary gland was found macroscopically or in section, it is suggested that the tumour was itself producing a compensating amount of hormones, so that no endocrine disturbance had been caused.

—E. COTCHIN.

I.—ERICHSEN, S. (1955). Connective-tissue mucin producing carcinoma of the canine mammary gland.—*Acta path. microbiol. scand.* **36**, 481-489. [In English.] **3736**

II.—ERICHSEN, S. (1955). A histochemical study on mixed tumours of the canine mammary gland.—*Ibid.* 490-502. [In English.] **3737**

I.—An account of a mammary gland carcinoma, the epithelial cells of which produced a mucin having the histochemical characteristics of chondroitin sulphuric acid or some closely related substance. It was suggested that the cells might be derived from myoepithelium and the relationship between this tumour and mixed ones was discussed.

II.—From a histochemical examination of eight mixed tumours from the mammary glands of bitches, E. considered that the cartilage-like tissue in these tumours should be regarded as true hyalin cartilage.—T. E. GATT RUTTER.

HEIKEL, P. B. & HOLGADO RIVAS, D. E. (1954). Cáncer del párpado en el vacune. [Cancer of the eyelid in cattle.]—*Gac. vet., B. Aires.* **16**, 209-214. **3738**

An account of 5 cases of prickle-cell epithelioma of the lower eyelid; two were of the vegetating type, and three of the infiltrating ulcerous type. In all cases there was involvement of the regional lymph nodes.

—I. W. JENNINGS.

LALL, H. K. (1953). Incidence of horn cancer in Meerut Circle, Uttar Pradesh.—*Indian vet J.* **30**, 205-209. **3739**

Out of 6,286 cattle clinically suspected to be affected with horn cancer during a five-year period, 93% were bullocks. No bull was found affected. L. suspected that interference

with testicular hormones following castration may be responsible for the condition.

—R. N. MOHAN.

VAN GILS, J. H. J. (1955). Neurofibromatosis bij het rund. [Neurofibromatosis in cattle.]—*Tijdschr. Diergeneesk.* **80**, 447-449. [English, French and German summaries.] **3740**

In less advanced cases of neurofibromatosis in cattle tumours are present only in the course of the costal nerves. In an advanced case, in which the brachial plexuses were involved, paresis of the forelimbs was seen.

—C. A. VAN DORSSEN.

KÖHLER, H. (1954). Über ein Neurom im Ganglion mesenteriale craniale bei einer Hündin. [Concerning a neuroma in the anterior mesenteric ganglion of a bitch.]—*Zbl. allg. Path. path. Anat.* **91**, 476-478. **3741**

In a 12-year-old bitch, with multiple uterine and vaginal fibromas, a neuroma—described in detail—was found in one histological section of the anterior mesenteric ganglion.—E. COTCHIN.

DE ROBERTIS, E., CANZANI, R., GASIC, G. & EPSTEIN, B. (1955). Particulate component in the blood plasma of mice with transplantable leukemia.—*Blood*, **10**, 325-333. [Interlingua summary.] **3742**

Particles measuring 19-58 μ were found in the plasma and on r.b.c. membranes of two strains of mice infected with transmissible leucaemia. The particles were not found in healthy mice, but were always present shortly before death in those affected.—JOHN SEAMER.

BURMESTER, B. R. & GENTRY, R. F. (1954). A study of possible avenues of infection with the virus of avian visceral lymphomatosis.—*Proc. 91st Ann. Meet. Amer. vet. med. Ass., Seattle*, 1954. pp. 311-316. Discussion: pp. 316-317. **3743**

Filtered extract of lymphomatous tissue and oral washings from cases of visceral lymphomatosis were used to study the infectivity of the causal virus by various routes of administration. The highest incidence of experimental infection followed intratracheal and intraperitoneal inoculation (83.1 and 82.6% respectively). The average incidence by other routes was:—nasal, 73%; cloacal, 57.6%; conjunctival, 47.2%; oral, 45.2%; by inhala-

tion, 39.2% ; and oesophageal, 7.7%. Oral washings yielded a high incidence only when administered intraperitoneally. It appeared that mucous membranes normally exposed to the air—and, in particular, those of the respiratory tract—were highly susceptible, but a much larger dose was necessary than in the case of the intraperitoneal route.

—T. E. GATT RUTTER.

GORDON, R. F., COLES, R. & STACEY, C. G. (1955). A transmission experiment with neurolymphomatosis.—*Vet. Rec.* **67**, 297-301. **3744**

An account of a field experiment involving the sending of eggs and four-week-old chickens from a farm [Farm A] where neurolymphomatosis had for some years been the main manifestation of the fowl paralysis complex, to another farm [Farm B], 80 miles away, where

avian leucosis had been the main manifestation. It was hoped in this way to obtain some evidence on the vexed question of transmission of neurolymphomatosis *via* the egg.

The results were rather confusing and difficult to interpret. Although no bird from the group of chickens brought from Farm A died from neurolymphomatosis over the period (400 days) of observation there was a higher incidence of this disease in birds of Farm B in contact with those from Farm A.

The authors suggest that although the birds from Farm A did not show evidence of the disease they may have acted as carriers of infection. The experiment offers little evidence to support the theory that exposure during the early brooding period influences the incidence of infection. The birds from Farm A, both those brought as four-week-old chickens and those hatched from eggs, had a higher incidence of leucosis than that shown at their home farm.

NUTRITIONAL AND METABOLIC DISORDERS

MAHADEVAN, V. (1955). The composition and nutritive value of tobacco (*Nicotiana tabacum* L.) seed cake or meal.—*Indian vet. J.* **31**, 280-282. **3745**

M. compared the chemical composition of cake made from tobacco seed grown in Andhra with that of tobacco seed meal prepared in Italy. The ether extractives in the Indian cake were much higher than those reported for the Italian specimens.—R. N. MOHAN.

CARROLL, E. J. & HUNGATE, R. E. (1955). Formate dissimilation and methane production in bovine rumen contents.—*Arch. Biochem.* **56**, 525-536. [Authors' summary modified.] **3746**

Experiments with sodium formate labelled with ^{14}C revealed a quantitative conversion of the carbon into CO_2 in rumen contents *in vitro*. Methane was produced in about the amount expected if the hydrogen from formate was used to reduce CO_2 . A trace of hydrogen was detected, indicating an intermediate conversion of HCOOH to H_2 and CO_2 . The authors discussed the formation of methane from substances other than formate.

HUNGATE, R. E., FLETCHER, D. W., DOUGHERTY, R. W. & BARRENTINE, B. F. (1955). Microbial activity in the bovine rumen: its measurement and relation to bloat.—*Appl. Microbiol.* **3**, 161-173. [Authors' summary modified.] **3747**

A manometric method, permitting quantitative determination of the acid, CO_2 and

methane produced during fermentation, was used in assaying the microbial activity in ruminal contents from cattle, removed by stomach tube. Ingesta with a high rate of fermentation showed a greater difference between diluted and undiluted samples than did ingesta having a low rate. Fresh clover was not completely fermented *in vitro* even after 8 hours. The fermentation rate of rumen contents obtained just before morning grazing on clover was lower than the rate of contents taken before the afternoon feeding, owing to the longer interval between feeding.

The fermentation rate of rumen contents from cattle with bloat was higher than that of normal cattle on the same pasture, but the proportions of acid, CH_4 and CO_2 were similar in both groups. The authors discussed factors involved in the production of bloat, and its prevention by the administration of methyl silicone.

CHERKASOV, V. A. (1955). [Irrigation of the rumen in atony in cattle.]—*Veterinariya, Moscow.* **32**, No. 3, pp. 63-67. [In Russian.] **3748**

Failures to obtain good results by lavage of the rumen in atony are attributed to three causes. (1) The use of narrow tubing. The author uses a garden hose, 45 mm. in diam.; two additional large openings are cut near its lower end on opposite sides, about 10 cm. distant. The tubing is carefully smoothed down, first with a file, then with emery paper.

When greased, it can be introduced easily into the oesophagus. First, several pailful of 1% sodium sulphate in water at 40° C. are introduced, and after this has been siphoned out, water at 10° C. This causes a violent contraction and the remainder of the ruminal content is ejected with great force. (2) Where the atony is only a secondary symptom, no lasting benefit is obtained by lavage. (3) The only objective method of assessing the result of the procedure is rumenography. Normal contractions give a rumenogram with steep oscillations, occurring at regular short intervals.—A. MAYR-HARTING.

WHITE, W. J., GREENSHIELDS, J. E. R. & CHUBATY, W. (1954). The effect of feeding sweet clover silage on the prothrombin time of blood of cattle.—*Canad. J. agric. Sci.* **34**, 601-606. **3749**

A relationship is postulated between prothrombin time and the amount of dark brown silage fed. It was concluded that an anti-coagulant had developed to toxic levels in the dark brown outside layer and probably in the mouldy silage. It is assumed that this was dicoumarol.—R. GWATKIN.

(1955). Symposium on nutritional aspects of blood formation. Proceedings of the Nutrition Symposium held at the University of Cincinnati, Ohio, October 22, 1954. [Contributors: CARTWRIGHT, G. E., CRAFTS, R. C., JAMES, G. W., JUKES, T. H., MOORE, C. V., MUELLER, J. J., SCHILLING, R. F., VILTER, R. W., WILL, J. J. & WILLIAMS, J. N.]—*Nutr. Symposium Ser.* No. 10, pp. 74. **3750**

The first paper in this symposium dealt with nutritional aspects of iron deficiency anaemia. Human beings absorb only about 10% of their intake of iron. Doses of 250-1000 mg. ascorbic acid increase this amount, and other reducing substances such as cysteine have a similar effect. Daily loss of iron from the human body averages 0.5-1.5 mg. per day; of this 0.3-0.5 mg. is excreted in the faeces, 0.5-1.0 mg. from the dermal surfaces, and a small amount in the urine.

Factors which influence the utilization of iron by copper deficient pigs were described in the next paper. The absorption of iron is depressed. At the same time the plasma turn-over rate and the amount of iron incorporated into the r.b.c. is increased, while the r.b.c. survival time is decreased to about a fifth of the normal value. In further papers the interrelationships of folic acid, vitamin B₁₂ and ascorbic acid in normal subjects and in

those with megaloblastic anaemia were discussed. A mechanism was discussed by which the first two substances may be involved in the synthesis of nucleic acids or their constituents uracil, thymine, and thymidine. Beyond the importance of vitamin B₁₂ in the breakdown of folic acid conjugate in food to folic acid, its exact significance is not known. It may also prevent the oxidation of ascorbic acid.

Antimetabolites and antibiotics and their effect in blood formation were also dealt with. Antibiotics have a sparing action on folic acid and vitamin B₁₂ requirements. Most of the evidence available indicates that their effects are due to changes which they produce in the intestinal flora. Some bacteria may destroy vitamin B₁₂, and there is also some evidence that intestinal bacteria produce substances which may cause anaemia.

Other contributors discussed the knowledge available on the function of the intrinsic factor in the absorption and utilization of vitamin B₁₂; stercobilin in relation to haemopoiesis; and the influence of hormones on anaemia.

—W. H. PARR.

THAIN, R. I. (1955). Cobalt deficiency in sheep and cattle.—*Tasm. J. Agric.* **26**, 154-164. **3751**

T. recorded typical histories of cobalt deficiency in flocks of sheep in Tasmania. Combined copper and cobalt deficiency was suspected in groups of calves. Failure to thrive, anorexia, scouring, weakness and stiffness and enlargement of joints were observed. The provision of copper and cobalt supplements effected cures.—D. C. BLOOD.

SJOLLEMA, B., GRASHUIS, J., VAN KOETSVELD, E. E. & LEHR, J. J. (1955). Onderzoekingen over kopziekte. [Investigation into hypomagnesaemia in cattle.]—*Tijdschr. Diergeneesk.* **80**, 579-604. [English, French and German summaries.] **3752**

Four of 8 cows that had been affected with grass tetany in previous years were fed a diet containing a high level of potassium salts (550 g. daily). All four cows developed tetany, either during the housing period or at pasture, whereas only one of the 4 controls became affected. The serum magnesium level was low not only during attacks of tetany but also days and sometimes weeks earlier. Observations on the controls, however, proved that a low serum Mg. level is not always followed by tetany. The serum phosphorus level was not noticeably raised during an attack.

—C. A. VAN DORSSEN.

STERLING, J. R. (1954). **Hyaluronidase in the management of canine urolithiasis.**—*Vet. Med.* **49**, 289-290. **3753**

S. recorded the treatment of five cases of recurrent urinary calculi with s/c inj. of hyaluronidase, three times weekly for periods between 10 and 16 months. Two dogs were found free from calculi at subsequent P.M. examination, one had calculi and the other two cases were lost sight of.—D. POYNTER.

GRANT, A. B. (1954). **The role of carotene in ovine rickets.**—*Proc. N.Z. Soc. Anim. Prod.* **14**, pp. 77-83. **3754**

The rachitogenic factor in green oats is carotene, moderate intake of which was found to intensify the effect of deficiency or near-deficiency of vitamin D.—C. C. BANNATYNE.

ROMVARY, J., MURANYI, F. & KRAMER, M. (1954). Adatok az újszülött borjak gyomorbélhurutjának oktanához. [Aetiology of gastro-enteritis in new-born calves.]—*Mag. állator. Lapja.* **9**, 228-233. [English and Russian summaries. Abst. from English summary.] **3755**

An outbreak of diarrhoea with high mortality in new-born calves was attributed to vitamin A deficiency. The vitamin A content of the colostrum of cows on the same farm was 114-173 I.U. per 100 ml., and that of pooled milk was 23 I.U. per 100 ml.—R.M.

O'DONOGHUE, J. G. (1955). **Blindness in beef cattle and its possible relationship to vitamin A deficiency.**—*Canad. J. comp. Med.* **19**, 61-64. **3756**

Vitamin A deficiency was common in beef cattle in Alberta in the last two years. In the cases of blindness reported, it is believed that a diagnosis of avitaminosis A could be supported on the basis of the lesions found P.M. The question remains as to whether it was due to a direct lack of the vitamin or was related to failure to utilize the available supply.

—R. GWATKIN.

WOOLLAM, D. H. M. & MILLEN, J. W. (1955). **Effect of vitamin A deficiency on the cerebro-spinal fluid pressure of the chick.** [Correspondence.]—*Nature, Lond.* **175**, 41-42. **3757**

The mean pressure of the c.s.f. of chicks reared on a diet containing no vitamin A increased from 108 mm. of water at 30 days of age to 212 mm. at 125 days. The pressure of the c.s.f. of normal chicks was 90-100 mm. of water.—R.M.

HELGEBOSTAD, A. (1955). Eksperimentell A hypervitaminose hos pelsdyr. [Experimental hypervitaminosis A in fur animals.]—*Nord. VetMed.* **7**, 297-308. [In Norwegian. English and German summaries. Abst. from English summary.] **3758**

Toxic doses of vitamin A for foxes and mink were 200 I.U. per g. body wt. daily for young animals and 200-300 I.U. per g. body wt. daily for adults. The following symptoms developed after continuous administration of these doses for 1-2 months:—anorexia; difficulty in moving; enlargement of the bones; spontaneous fractures; shedding of the fur; exophthalmus; cramp. Histological examination revealed the presence of osteodystrophy in the bones of young animals.—R.M.

HOVE, E. L. & SEIBOLD, H. R. (1955). **Liver necrosis and altered fat composition in vitamin E-deficient swine.**—*J. Nutr.* **56**, 173-186. [Authors' summary modified.] **3759**

A fatal liver necrosis developed in growing pigs fed a diet deficient in vitamin E, and containing 6% protein as furnished by soya bean meal, and with 2% cod-liver oil. Of the 6 pigs fed this diet from weaning, three died suddenly with massive acute haemorrhagic liver necrosis. Two of the survivors, when slaughtered, had post-necrotic cirrhosis of the liver, but the liver fat was lower than normal. Muscle fat of vitamin E-deficient pigs had lesser concentrations of linoleic, arachidonic and pentaenoic acids than that of controls fed vitamin E supplements; in the liver fat there were similar changes except in arachidonic acid concentrations.

Five of the 6 animals in control lots on the same basal diet but supplemented with α -tocopheryl acetate survived to slaughter when no appreciable liver damage was demonstrable.

FRITZSCHE, K. (1954). Ein Spontanfall von Küken-Encephalomalacia. [Nutritional encephalomalacia in chicks.]—*Tierärztl. Umsch.* **9**, 119-121. **3760**

An account of an outbreak of nutritional encephalomalacia in chicks, believed to be the first published report of an outbreak in Germany. It was found to be histologically similar to the disease as reported from other countries, except for the presence of calcium deposits in the cerebellum.—W. G. SILLER.

HAWKINS, W. W. & YOUNG, E. G. (1955). **Nitrogen metabolism in vitamin B₆ deficiency in the dog.**—*Amer. J. Physiol.* **181**, 196-202. **3761**

The effects of vitamin B₆ deficiency in the

dog were different from those in the rat in that there was no increase in the blood urea, in the production of urea from test loads of amino-acids, nor in the excretion of nitrogen. There was, however, a small increase in the excretion of nitrogen when desoxypyridoxine was administered. The level and the distribution of the plasma proteins were not affected.

—T. E. GATT RUTTER.

HOPPER, J. H. & JOHNSON, B. C. (1955). The production and study of an acute nicotinic acid deficiency in the calf.—*J. Nutr.* **56**, 303-310. **3762**

Two out of three new-born calves which were removed from their dams 24 hours after birth and fed a synthetic milk deficient in nicotinic acid but supplying 0.17% of tryptophane developed inappetence, severe scouring, dehydration and weakness, and died after 2-3 days. The third continued to grow well and developed no symptoms during 22 days of observation. Two positive controls fed the same diet plus nicotinic acid, 2.60 mg. per l. remained healthy for 24 and 38 days of observation respectively.—F.E.W.

MCCLYMONT, G. L. (1954). Diseases of breeding ewes. Hypocalcaemia and pregnancy toxæmia.—*N.S.W. Dep. Agric., Dis. Anim. Leaflet* No. 52, pp. 7. **3763**

The differentiation of pregnancy toxæmia and hypocalcaemia of ewes by field observations is described. Emphasis is placed on the sudden occurrence of hypocalcaemia in a number of animals compared with the gradual development of a pregnancy toxæmia outbreak. The effect of a sudden change in diet as the cause of hypocalcaemia is compared with the usual history in pregnancy toxæmia of a gradually declining plane of nutrition. Clinically, sheep affected with hypocalcaemia become paralysed and die within 24 hours, whereas in pregnancy toxæmia, blindness, dullness and a course of some days is usual.

The treatment and prevention of both diseases are described.—D. C. BLOOD.

MCCLYMONT, G. L. & SETCHELL, B. P. (1955). Ovine pregnancy toxæmia. I. Tentative identification as a hypoglycaemic encephalopathy.—*Aust. vet. J.* **31**, 53-68. [Authors' summary slightly modified.] **3764**

Thirteen cases of pregnancy toxæmia were produced by fasting 50 Merino ewes, 130-134 days pregnant, for four and a half days. All cases carried twins.

A highly significant difference was found between minimal glycaemias recorded before symptoms were noted in affected ewes, and minimal glycaemias recorded in unaffected ewes carrying twins and singles. There was a close association between the day on which minimal glycaemias were recorded and development of symptoms. Normal glycaemias and hyperglycaemias tended to develop subsequent to induction of symptoms, with no associated clinical remission except in some early cases.

There was no association between very high blood ketone levels and induction of symptoms, indicating that hyperketonaemia has no primary aetiological role.

Gross fatty changes in the liver were not constant in cases killed before fatal termination of the disease. In the adrenal glands in such cases there were only changes associated with stress, and kidneys were macroscopically normal in all cases except one. Gross pathological changes in field cases of pregnancy toxæmia are considered to be secondary and probably due to prolonged starvation or dehydration and to have no primary aetiological role.

Neurophysiological study of symptoms showed them to be consistent with phyletic cerebral depression such as occurs in hypocalcaemia. Attention is drawn to the identical nature of the symptoms of insulin-induced hypoglycaemic cerebral depression in sheep, and of pregnancy toxæmia.

A preliminary report is given of experiments resulting in insulin-induced hypoglycaemic cerebral depression in sheep, with symptoms identical to those seen in pregnancy toxæmia, at minimal blood glucose levels of the order or above those found in pregnancy toxæmia.

It is tentatively concluded that the symptoms of pregnancy toxæmia are primarily due to cerebral depression, eventually permanent, resulting from the hypoglycaemia which is a physiological accompaniment of undernutrition or starvation of ewes in advanced pregnancy. The greater susceptibility of ewes with multiple pregnancy is accounted for by their tendency to develop a more profound hypoglycaemia under these conditions.

The erratic nature of the response to therapeutic measures which induce hyperglycaemia is considered to be largely related to whether hypoglycaemic cerebral depression is reversible at the time of treatment. The reported value of exercise in control and therapy is related to the theory.

DISEASES, GENERAL

STABLEFORTH, A. W. (1954). The control of contagious diseases in farm animals.—*J. Fmr's Cl., Lond.* Part 4, pp. 48-53. Discussion: pp. 56-62. **3765**

A general paper on TB., brucellosis trichomonas infection, mastitis, Johne's disease, swine fever, swine erysipelas, virus pneumonia of pigs, and some sheep diseases, with special reference to conditions in the United Kingdom and to work carried out at Weybridge. The main points brought out in discussion on the paper were the possible spread of vibriosis by artificial insemination, and the eradication of brucellosis by use of the agglutination test with disposal of reactors, rather than by vaccination.—W. S. MARSHALL.

FLOCH, H. (1954). La pathologie vétérinaire en Guyane française. Les affections des bovidés. [Diseases of cattle in French Guiana.]—*Rev. Elev.* **7**, 157-163. **3766**

There are about 3,000 cattle in French Guiana. The most important disease is trypanosomiasis caused by *T. vivax*. Prophylaxis and treatment with dimidium chloride and antrycide have given satisfactory results. Out of 1,149 agglutination tests for *Br. abortus*, 173 were positive. Anthrax and *Salmonella bovis-morbificans* infection occasionally occur. There have been outbreaks of F. & M. disease from time to time, but the disease has generally been of a mild character.—R.M.

FLOCH, H. (1955). La pathologie vétérinaire en Guyane française. (Les affections des porcins, des caprins et des ovins). [Diseases of pigs, sheep and goats in French Guiana.]—*Rev. Elev.* **8**, 11-13. **3767**

Infestation by *Stephanurus dentatus* and by *Metastrongylus elongatus* caused important losses among pigs. Nine per cent of 434 pigs examined were positive to an agglutination test for *Brucella abortus*. *Salmonella* infection is rare in pigs.

Sheep and goats are rare in French Guiana. Q fever antibodies were found in two butchers handling sheep and goats.—A.S.

BECKER, L. (1954). Ein Beitrag zur Statistik der Geflügelkrankheiten. [Poultry disease statistics. Material examined at the Rostock Veterinary Institute, during 1952/53.]—*Mh. VetMed.* **9**, 431-434. **3768**

TB., parasitic diseases, leucosis and faulty husbandry accounted for about half the poultry diseases diagnosed at the Rostock Institute.

The low incidence of fowl paralysis and coryza is noteworthy. Coccidiosis and pullorum disease account for well over half the deaths in chicks.—W. G. SILLER.

I.—GLOVER, R. E. (1954). Discussion: Gastro-enteritis: The aetiological importance of viruses and *Bacterium coli*. Neonatal diseases of the calf.—*Proc. R. Soc. Med.* **47**, 967-968. **3769**

II.—LOVELL, R. (1954). Discussion: Gastro-enteritis: The aetiological importance of viruses and *Bacterium coli*. *Bact. coli* and calves.—*Ibid.* 968-969. **3770**

I.—A form of pneumonia, occurring in calves in North-West England and caused by a filtrable pantropic virus with particular pneumotropic affinities, is frequently complicated by secondary bacterial invaders (*Corynebacterium pyogenes*) and shows a seasonal peak. The constant involvement of the turbinate region suggests a primary infection of the upper respiratory tract. The more severe lesions are the result of bacterial invasion.

II.—L. discussed recent work on the role of environment and of colostrum in *Bact. coli* infection (white scours) of calves. He stated that field studies in progress were confirming the findings obtained in studies of the infection in an enclosed community.—W. R. BETT.

RENOUX, G. & MAURIN, J. (1954). Fièvre Q et brucellose. Les réactions sérologiques croisées ne sont pas dues à un antigène commun. [Crossed serological reactions in brucellosis and Q fever are not due to a common antigen.]—*Ann. Inst. Pasteur.* **86**, 112-115. **3771**

According to the authors, the hypothesis of a common antigenic fraction to *Brucella* and *Rickettsia burneti* is not experimentally established. Crossed serological reactions occur only when the herd contains a sufficient number of animals infected with both organisms.—J.D.

WATTS, P. S. (1955). Genital infections of sheep, with particular reference to brucella-like organisms.—*Aust. vet. J.* **31**, 1-6. **3772**

This paper reviews briefly information known about enzootic abortion in ewes due to a virus belonging to the psittacosis-lymphogranuloma group. The disease has not positively been shown to be present in Australia.

An organism isolated from epididymitis in rams in Queensland and South Australia belongs to the *Brucella* group and is similar to

that described as causing abortion in ewes in New Zealand. Details are included of proposed trials to determine the importance of venereal transmission of the disease, and of attempts to develop a satisfactory serological method of diagnosis. Recommended management practices for the control of epididymitis are given.

—L. E. A. SYMONS.

I.—CROWHURST, R. C. (1954). Discussion on periodic ophthalmia. Clinical aspects.—*Proc. R. Soc. Med.* **47**, 236-237. Discussion: 239. **3773**

II.—ASHTON, N. (1954). Discussion on periodic ophthalmia. Pathology.—*Ibid.* 237-238. Discussion: p. 239. **3774**

I.—C. discussed the clinical symptoms and signs, diagnosis, prognosis, and treatment of the condition as it occurs in England, and considered some points regarding aetiology. The addition of riboflavin to the diet has produced disappointing results. Cortisone has been reported by some other workers to bring about rapid recovery.

II.—An account of the pathological changes of the three clinical phases of equine periodic ophthalmia: the acute, the quiescent, and the old. The microscopic picture differs little from many human cases of recurrent iridocyclitis of equally obscure aetiology.

—W. R. BETT.

ZELLER, R. (1954). Innenkörperanaemien beim Pferde. [Anaemia in horses associated with intracorpuseular granules.]—*Berl. Münch. tierärztl. Wschr.* **67**, 270-273. [English summary.] **3775**

Intra- or extra-erythrocytic dark blue or purple granules, distinct from Jolly bodies or punctate basophilia, have been described in certain types of poisoning (e.g. with sulphonamides) in human beings, and in cats and mice following the injection of methylene blue, when brilliant cresyl blue or Nile blue sulphate are used in vital staining.

Z. described a similar condition in two emaciated racehorses affected with anaemia. These granules disappeared and the condition was cured after the administration of vitamin B₁₂.—W. G. SILLER.

I.—SCHROEDER, R. J. & MOYS, M. D. (1954). An acute upper respiratory infection of dairy cattle.—*J. Amer. vet. med. Ass.* **125**, 471-472. **3776**

II.—MCINTYRE, R. W. (1954). Experimental studies of acute upper respiratory infection in calves.—*Ibid.* 473-474. **3777**

An acute infectious respiratory disease of adult cattle was observed in California. Out of a total of 13,000 cattle in 52 herds, 1,000 became ill and 30 died. The majority of those affected were lactating cows. The disease commenced with complete cessation of lactation, rise in body temp. to 104°–106° F., and sometimes loss of appetite with cessation of rumination. The nasal mucous membranes were inflamed and there was a muco-purulent nasal discharge and coughing. In most cases these symptoms subsided within a week, but in some subcutaneous emphysema or acute respiratory distress developed. The P.M. findings were as follows:—severe haemorrhagic tracheitis and bronchitis; numerous small areas of necrosis in the larynx and pharynx; alveolar emphysema; severe inflammation of the large intestine; mucoid inflammation of the small intestine. The symptoms and lesions differed from those occurring in the transmissible gastro-enteritis described by Olafson *et al.* [*V.B.* **17**, 792] and in the mucosal disease described by Ramsey & Chivers [*V.B.* **24**, 3272]. Limited success was claimed for treatment with penicillin and sulphapyridine combined.

II.—The disease described above was experimentally transmitted to 4 calves by inoculation of blood or sputum from affected animals by the subcutaneous, intramuscular, intranasal and conjunctival routes, and to a calf in contact with infected calves. The nature of the infective agent has not yet been determined.—R.M.

MESHKOV, N. V. & GAUKE, L. K. (1953). [Pathological anatomy of bovine infectious bronchitis.]—*Veterinariya, Moscow.* **30**, No. 11. pp. 27-30. [In Russian.] **3778**

On the basis of 84 P.M. examinations of cattle with broncho-pneumonia the authors traced the development of the disease from the beginning as an acute catarrh of the large bronchi to an intensive lobar broncho-pneumonia. The aetiology of the disease was not determined. Except for the severest form the animals appear clinically healthy, their only symptom being a cough.

—A. MAYR-HARTING.

BLOOD, D. C. & HUTCHINS, D. R. (1955). Traumatic reticular perforation of cattle: with particular reference to the efficiency of conservative treatment.—*Aust. vet. J.* **31**, 113-123. **3779**

A record of approx. 100 consecutive cases of traumatic reticulo-peritonitis in cattle is presented. The most frequent cause was

baling wire which had been put through a chaff-cutter. Total and differential leucocyte counts were of considerable assistance in diagnosis, particularly in the initial stages.

Conservative treatment by immobilization and the administration of sulphonamides and penicillin resulted in recovery of 82% of cases. Early treatment was essential and immediate rumenotomy is recommended for cows in the last three months of pregnancy.

—D. F. STEWART.

HUPKA, E. (1954). Über eine in Deutschland neu auftretende hochinfektiöse Gastroenteritis der Schweine. [Fresh outbreak of highly infectious gastro-enteritis of pigs in Germany.] —*Dtsch. tierärztl. Wschr.* **61**, 173-174. **3780**

A description of a highly infectious gastroenteritis in pigs in Lower Saxony, characterized by severe transitory diarrhoea and pyrexia. Older pigs usually recover after 6 days but unweaned piglets invariably die. Severe gastroenteritis, myocardial degeneration, general venous congestion and haemorrhages on the kidneys and serous membranes are found P.M. The aetiology is unknown, but a vibrio has been suspected.—W. G. SILLER.

NIELSEN, S. W. & MEDWAY, W. (1954). Canine renal disorders. I. Hydronephrosis: report of three cases.—*N. Amer. Vet.* **35**, 849-852. **3781**

A discussion of the causation of hydronephrosis in dogs with an account of the clinical and pathological aspects of the condition in three cases.—T. E. GATT RUTTER.

LYAPUSTIN, A. K. (1954). [Interchange of pigments in animals and differential diagnosis of their disturbances.]—*Veterinariya, Moscow.* **31**, No. 2, pp. 33-38. [In Russian.] **3782**

L. described the differentiation between obstructive, parenchymatous or toxic, and haemolytic jaundice, by means of quantitative and qualitative tests for endogenous pigments. He described in detail the distribution of haemoglobin, haemobilirubin, hepatobilirubin, urobilinogen, urobilin and stercobilin throughout the body in each type of jaundice.

—I. W. JENNINGS.

ACKROYD, J. F. (1955). Platelet agglutinins and lysins in the pathogenesis of thrombocytopenic purpura, with a note on platelet groups.—*Brit. med. Bull.* **11**, 28-35. **3783**

Conflicting evidence on the aetiology of idiopathic thrombocytopenic purpura is discussed and it is concluded that while an anti-

platelet factor is responsible in some instances, improved techniques are necessary to determine pathogenesis in others. The action of allyl-isopropyl-acetyl-carbamide ("sedormid") on platelets and capillaries is given and it is suggested that purpura follows lysis of a platelet-sedormid antigen by antibody and complement.—JOHN SEAMER.

DUGUID, J. B. (1955). Mural thrombosis in arteries.—*Brit. med. Bull.* **11**, 36-38. **3784**

Investigation of the histopathology of atherosclerosis and of experimental lesions suggests that mural thrombosis plays a more important part in pathogenesis than previously supposed. The arterial endothelium is an adjustable membrane, capable of covering fibrin or thrombotic material deposited on it. This may occur within 48 hours, the thrombus becoming incorporated in the vascular wall. Fibrin and r.b.c. tend to homogenize; w.b.c. may persist. Fatty change in the engulfed surface deposit with resultant cavitation produces atheroma. Organization results in the intimal vascularization typical of atherosclerosis. Final fibrosis may not obliterate large cavities. Recurring deposits may initially occlude the vessel, but blood pressure and organization result in ultimate enlargement. The implications of this process in hypertensive arteriosclerosis are discussed.—JOHN SEAMER.

BROOYMANS, A. W. M. (1954). Standardization of leads in veterinary clinical electrocardiography.—*Tijdschr. Diergeneesk.* **79**, 801-811. [In English. French, German and Dutch summaries.] **3785**

A system is proposed using Einthoven's bipolar limb leads, unipolar limb leads and unipolar chest leads with circumferential lead technique, the electrode positions for precordial leads being different for horses, cattle and dogs. He described special techniques for these animals. He proposed the use of a standardized nomenclature based on the international accepted rules of medical cardiography.

—C. A. VAN DORSSSEN.

HJARRE, A., EHLERS, T. & THAL, E. (1952). Riesenzellenpneumonien bei Tieren. [Giant-cell pneumonia in animals.]—*Schweiz. Z. allg. Path.* **15**, 566-590. [English and French summaries.] **3786**

During the course of a year at the State Institute of Veterinary Medicine, Stockholm, the authors observed giant-cell pneumonia in 8 pigs with various forms of lung infection, in 6 dogs with distemper, and in a hare with

mycotic pneumonia. It was also present in 8 rabbits which had been given repeated i/v injections of killed streptococci. In all affected pigs a skin disease, similar to that described as pemphigus vegetans in human beings, was simultaneously present. The aetiology of giant-cell pneumonia appears to be complex and variable. It may be regarded as a form of alveolar-cell pneumonia.—R.M.

MATUSEVICH, V. F. (1955). [Silicosis in farm animals.].—*Veterinariya, Moscow*. **32**, No. 5, pp. 51-54. [In Russian.] **3787**

In dry wooded and steppe country, deaths from non-infectious respiratory disease are

See also absts. 3887-3888 (reports, Scotland); 3897 (book, diseases of the goat).

POISONS AND POISONING

ROMANENKO, K. L. (1954). [Poisoning of farm animals with superphosphate.].—*Veterinariya, Moscow*. **31**, No. 8, p. 52. [In Russian.] **3788**

Investigations were made on some farms where poisoning of animals by superphosphate fertilizers had occurred. It was found that fertilizers containing fluorine were particularly dangerous and that poisoning occurred when animals had access to the fertilizers or when these had not been properly mixed with the soil.

R. described the clinical picture and the lesions found P.M.—F. A. ABBEY.

HALLGREN, W., KARLSSON, N. & WRAMBY, G. (1954). Molybdenförgiftning ("molybdenos") hos nötkreatur i Sverige. [Molybdenum poisoning of cattle in Sweden on pasture contaminated by factory smoke.].—*Nord. Vet-Med.* **6**, 469-480. [In Swedish. English and German summaries. Abst. from English summary.] **3789**

Molybdenum poisoning was observed in a herd of cows grazing a pasture contaminated by smoke from a steel works 100 metres away. One cow died, the Mo content of the serum being 0.7 mg. per l. The remainder recovered on being removed from the pasture. Two horses grazing the same land were unaffected, although the Mo content of their blood serum was 1.1 and 1.4 mg. per l. The vegetation contained up to 231 mg. Mo per kg. dry matter. Two cows each given a single i/v injection of 0.5 g. CuSO_4 in 500 ml. water, before being placed on the affected pasture for 2 months, remained free from symptoms of Mo poisoning; the Mo content of the serum increased to 1.9–2.1 mg. per l.—R.M.

often registered. They are not nearly so frequent where grassland predominates. The typical P.M. findings in such cases include accumulation of dust particles containing silica, perivascularitis, peribronchitis, emphysema, thickening of the alveolar walls. In animals that were exposed for a short period experimentally to the inhalation of dust dyspnoea developed after 8 months and X-ray examination revealed fibrosis of the lungs. Prophylactic measures consist of dust abatement: ensuring grass cover for dusty soil, protection of sheds from wind, avoiding the use of dry brooms in sheds and of indoor grooming of animals, and installation of suitable ventilation systems on farms.—A. MAYR-HARTING.

GANGULI, H. D. & CHOWDHURI, S. (1953). Acute lead poisoning in cattle and lead contents of soil and grass in grazing grounds.—*J. Inst. Chem., India*. **25**, 165-170. [Abst. in *J. Sci. Ed. Agric.* **5**, 118 (1954).] **3790**

Following the detection of lead shot in the rumen of 5 carcasses on a dairy farm, which had previously served as a shooting range, the authors found a higher lead content in grass, soil and subsoil of shooting ranges, abandoned military sites and paint works than in similar samples from grazing grounds elsewhere.

—R. N. MOHAN.

JACKSON, S. H. (1955). The stabilization of the fluorine concentration of the total ash of rats. *Canad. J. Biochem. Physiol.* **33**, 93-98. **3791**

In rats to which fluorine has been administered over an extended period, the ultimate concentration of fluorine in the total ash, and the time required to reach it, are proportional to the average rate of fluorine intake. The total retained fluorine in a given period will be the same provided the total in the diet was the same, despite considerable fluctuations in the rate of intake. Stabilization of the fluorine concentration was found to occur while rapid growth was still taking place.—R. GWATKIN.

MAZURCZAK, J. (1954). Próba zastosowania chromatografii bibulowej do rozpoznawania zatruc talem u psów. [Use of paper chromatography for the diagnosis of thallium poisoning in dogs.].—*Méd. vét., Varsovie*. **10**, 479-481. [In Polish.] **3792**

This method enables detection of thallium in urine before any diagnostic symptoms appear. The result of chromatography depends

on dissociation of chemical substances and on the quantity of thallium present in the urine. In reading the test or chromatograph a formula is used and spots produced by urine and by a control substance are studied for colour.

—J. R. MITCHELL.

WAGENER, K. & KRÜGER, A. (1954). Hühner als Versuchstiere bei der Hyperkeratose (X-Disease). [Fowls as experimental animals in hyperkeratosis.]—*Dtsch. tierärztl. Wschr.* **61**, 457-459. **3793**

Young growing cockerels were found to be suitable test subjects for the testing of substances for their hyperkeratosis-producing capacity, the substances being administered in repeated non-toxic doses at intervals of a few days. The vitamin A deficiency symptoms which occurred were less striking than those due to endocrine hypofunction manifested in arrested growth, testicular atrophy and regression of the secondary sexual characters.—W. G. SILLER.

HAIKONEN, M. (1954). Om impregnerade trävarors giftighet för husdjuren. [Toxicity of timber treated with preservatives.]—*Nord. VetMed.* **6**, 533-546. [In Swedish. English and German summaries. Abst. from English summary.] **3794**

H. studied the solubility in bovine saliva of four commercial wood preservative preparations. The area of wood impregnated with each of these preservatives which a cow would have to lick in order to ingest a lethal dose of poison was as follows:—5.5 sq. m. of wood preserved with a preparation containing 28% arsenic trioxide, 24% sodium arsenate, 18% sodium dichromate and 30% zinc sulphate; 8.5 sq. m. preserved with 25% sodium fluoride, 25% sodium arsenate, 38% sodium dichromate and 12% dinitrophenol; 21 sq. m. preserved with arsenic oxide 208 parts, chromium trioxide 90 parts and copper oxide 90 parts; 178 sq. m. preserved with 50% copper sulphate, 10% chromium acetate and 40% sodium dichromate.

—R.M.

SZAFLARSKI, J. & LOSINSKI, T. (1954). Zatrucie swin mazia pogazowa. [Coal tar poisoning in pigs.]—*Méd. vét., Varsovie.* **10**, 150-151. [In Polish.] **3795**

A note on deaths of piglets housed in a newly built piggery. P.M. examination revealed fatty degeneration and infarct of the liver. The floors had been impregnated with tar and were constantly licked by the animals. [A similar incident was reported by Luke (*V.B.* **52**, 763)].

—J. R. MITCHELL.

IL'INOV, S. D., NOVAK, D. D., LAVRUSHKO, T. A., SHULOV, V. V. & KLIMOV, N. D. (1955). [Buttercup poisoning with symptoms similar to those of braxy.]—*Veterinariya, Moscow.* **32**, No. 3, pp. 79-84. [In Russian.] **3796**

The authors suggested that an infectious enterotoxaemia, observed during spring in sheep in South Kazakhstan, is due to the poison of *Ranunculus falcatus* and *R. orthoceras*. Their poison, proto-anemonin, acts by irritating and necrotizing the tissues of the digestive tract with consequent disturbance of intestinal function, and the production of toxic substances from the decomposing contents of the intestine. In the organs of animals that have died from the disease the same micro-organisms are found as in braxy; but these, in the opinion of the authors, have penetrated the intestinal barrier, damaged by the poison, and are only of secondary importance in the development of the disease. They suggested that current opinion on braxy should be revised. Work on braxy has been done, so far, mainly by bacteriologists; nutritional and other factors may consequently have received too little attention while the role of anaerobes in the pathogenesis of the disease may have been over emphasized.

—A. MAYR-HARTING.

PECHT, G. (1954). Beitrag zur Frage der Dürerer Krankheit. ["Düren" disease (a condition in dairy cattle resulting from feeding with trichlorethylene extracted soya bean meal).]—*Berl. Münch. tierärztl. Wschr.* **67**, 143-144. **3797**

P. suggested that methionine-sulphoximine, produced by the extraction of soya beans with trichlorethylene, might be the cause of "Düren" disease in cattle.—H. BEHRENS.

GLADENKO, I. N. & FORTUSHNY, V. A. (1954). [Toxicity of plants sprayed with hexachlorane.]—*Veterinariya, Moscow.* **31**, No. 3, pp. 59-63. [In Russian.] **3798**

Benzene hexachloride ("hexachlorane") is playing an increasing role in the preventive treatment of crops against pests. The effect of this drug on animals was therefore investigated. Direct feeding of the drug mixed with fodder to horses and sheep resulted in symptoms of poisoning. If, however, the animals were fed crops (beet, potatoes and green fodder) that had been treated with the drug a couple of months before being harvested, no ill-effect could be observed, clinically or by lab. methods. Cattle, horses, sheep and pigs were tested in these large-scale experiments. Meat, milk and

organs of animals that had received such food were free from hexachlorane, only the fat tissue smelled slightly of the drug.

—A. MAYR-HARTING.

BARKE, A. (1954). Über Phenothiazinwirkung nach Bestrahlung. [Effect of infra-red irradiation of horses on tolerance to phenothiazine.]—*Tierärztl. Umsch.* **9**, 124-126. **3799**

In horses treated with phenothiazine, infra-red irradiation resulted in rapid desquamation and falling of hair over the whole body surface. Similar effects were produced in mice and dogs, and in the latter there was severe skin pigmentation. Such effects were not produced by irradiation in the absence of phenothiazine dosage.—F. R. PAULSEN.

MCCLYMONT, G. L. & WYNNE, K. N. (1955). The possibility of photosensitisation due to ingestion of aphids. [Correspondence.]—*Aust. vet. J.* **31**, 112. **3800**

See also absts. 3563 (toxicity of *A. fumigatus* substrates); 3680 ("salmon poisoning" in dogs); 3888 (report, Scotland).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

CLIFTON, E. E. (1954). The present status of therapeutic use of enzymes.—*Amer. J. med. Sci.* **228**, 568-585. [Author's summary slightly modified.] **3802**

When used in conjunction with good medical and surgical principles, including the use of antibiotics, enzymes are a very useful addition to our armamentarium. Streptokinase-streptodornase is most useful in haemothorax, haematomas, in thick empyema and in abscesses, wounds or ulcers containing plasminogen. Trypsin will be most useful in debriding early chronic abscesses, ulcers and wounds and for clearing the respiratory tract of thick secretions. Its use in thrombophlebitis and related conditions is still controversial. Hyaluronidase will increase the speed of absorption of clyses and drugs, the resorption of excess fluids and blood in tissues and the effectiveness of local anaesthesia.

There are many other suggested uses of enzymes; the new enzymes now in process of development may be found very useful especially in treatment of burns (collagenases) and vascular thromboses (plasmin).

THORP, F., Jr. & GRAY, M. L. (1954). Sulphathiazole blood levels in sheep.—*Mich. St. Coll. Vet.* **14**, 70-73. **3803**

Sulphathiazole was given orally to three

The possibility that aphids may contain photosensitizing substances is pointed out. It is suggested that field cases of photosensitization may occur when animals ingest plants heavily infested with the insects, although it has not been proven that the photodynamic agent passes the hepatic barrier or achieves a significant concentration in the serum.—D. C. BLOOD.

BISWAL, G. (1955). Hazards of gammexane with reference to treatment of pediculosis in goats.—*Indian vet. J.* **31**, 426-431. **3801**

Poisoning believed to be due to benzene hexachloride is described in a flock of 44 goats after dusting with a water dispersible powder of "gammexane" (? 6.5% gamma B.H.C.). Two days later two of the animals displayed marked nervous symptoms but eventually recovered. The urine of these and several others became red and r.b.c. were isolated. B. suggested that this was due to damage to the renal epithelium.—W. E. PARISH.

ewes and one lamb, blood samples being taken 4 hours after the initial administration and then at 24-hour intervals. A safe therapeutic level of sulphathiazole was obtained by giving an initial dose of 2 g. per lb. body wt. with a maintenance dosage of 1 g. per lb. body wt. at 12-hour intervals.—J. M. LEACH.

BUNN, C. E. E. & BURCH, J. E. (1955). Hydrocortisone in the treatment of traumatic arthritis in Thoroughbreds.—*N. Amer. Vet.* **36**, 458-461. **3804**

Hydrocortisone treatment by instillation into the carpal and fetlock joints of 137 acute and 318 chronic cases of traumatic arthritis in Thoroughbred horses decreased pain, swelling, and heat and increased mobility within a few hours. Treated horses manifested no untoward symptoms.—T. E. GATT RUTTER.

SHENMAN, G. (1955). Enzootic haematuria of cattle. [Correspondence.]—*Vet. Rec.* **67**, 459. **3805**

S. treated successfully sporadic cases of enzootic haematuria with i/m injections of 60 mg. of a vitamin K analogue, "kapilin." —JOHN SEAMER.

HEDON, L. & MACABIES, J. (1954). Effets des fortes doses de cortisone sur le métabolisme

du chien normal. [Effects of high doses of cortisone on a normal dog.]—C. R. Soc. Biol., Paris. 148, 2054-2056. **3806**

Large doses of cortisone lowered the basal metabolism by 15%; they slightly increased the respiratory quotient; and they increased by 11% the excretion of nitrogen in the urine without altering the ratio:—Urea N : Total N.

—T. E. GATT RUTTER.

BRASS, W. (1955). Verbesserung der Betäubungsverfahren beim Hund durch Megaphen. [Improvement of anaesthesia in the dog by the use of "megaphen" (dimethyl-amino-propyl - 3 - chlorphenothiazine).]—*Dtsch. tierärztl. Wschr.* 62, 168-175. **3807**

B. discussed the properties and actions of chlorpromazine. He described its use in 166 dogs by all parenteral routes in combination with the i/v injection of amidone (methadone) and "polamivet" (a proprietary preparation containing amidone and diphenyl-piperidino-ethyl acetamide). For a wide range of surgical operations, the two constituents of this prepara-

tion, when injected at an optimal interval, were said to have provided degrees of sedation and analgesia approaching those achieved by true anaesthesia.—G. P. MARSHALL.

ROTHENBERG, N. A. & KLOFANDA, R. E. (1954).

Further experiences with a new antiseptic. —*Calif. Vet.* 7, No. 4, pp. 22-23 & 30. **3808**

Mercosterol (a mercuriated sterol with 0.0075% Hg) has previously been used successfully for the treatment of mastitis due to streptococci, staphylococci and *Bact. coli* [V.B. 24, 2664]. R. & K. described the treatment of 56 cases of mastitis, with 6 failures. No evidence of development of resistance and no toxic symptoms were observed. The product—as an oily or vaseline-based preparation—was found valuable in the treatment of cuts, wounds and infections of horses, cattle, dogs and cats, especially for otitis and otorrhoea in cats and dogs. Large gelatin capsules (5 ml.) have been used for the successful treatment of *post-partum* uterine infections in cattle.

—MALCOLM WOODBINE.

See also absts. 3502-3503 (mastitis); 3514 (TB.); 3520 (turkey erysipelas); 3526 (sulphamethylthiazole in fowl cholera); 3527 (neomycin sulphate in calf enteritis); 3534 (fowl typhoid); 3559 (Cl. oedematiens infection); 3560 (V. fetus infection); 3569 (contagious agalactia); 3577 (anticyde); 3583 (atoxyl); 3584 (blackhead); 3536 (coccidiosis in chicks); 3588 (piroplasmiasis in a cat); 3591 (anaplasmosis); 3648 (action of detergents on swine fever virus); 3653-3657 (dog distemper); 3662 (rabbit fibroma); 3667-3670 (Newcastle disease); 3690-3691, 3702, 3798 & 3801 (B.H.C.); 3693, 3719 & 3799 (phenothiazine); 3695 (control of tsetse flies); 3699 (insecticides); 3700 (toxaphene); 3705 (action of drugs and insecticides); 3734 (anthelmintic); 3898 (book, antibiotics); 3899 (book, anaesthesia).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

HAFEZ, E. S. E., BADRELDIN, A. L. & SHAFFEL, M. M. (1955). The hair coat in Bovinae. —*Emp. J. exp. Agric.* 23, No. 89, pp. 34-38. [Authors' summary modified.] **3809**

The structure and distribution of hairs was investigated in Egyptian buffaloes and cattle. Specimens of skin from 16 body regions were taken from three adult bulls of both species. Similar studies were also made on one buffalo calf and two buffalo embryos. Serial vertical and horizontal sections were cut from each body region. The av. number of hairs per sq. cm. of skin varied with species, breed, individual, sex, body region, and age. Buffaloes have long, stiff, and scattered, while cattle have short, glossy and dense hairs. The av. number of hairs per sq. cm. of skin, for all the body surface, was 394 in buffaloes and 2,633 in cattle. In both species the minimum number of hair follicles was in the dorsal sacral region while the max. number was in the ventral, neck and groin regions; in cattle the breast (dewlap) region also possessed a great number of follicles. Young animals have a lighter-coloured and denser hair coat. The buffalo calf at birth had 1,248 hairs per sq. cm. of skin and the hair

number per unit area of skin decreased with advancing age. The hair characteristics were discussed in relation to the adaptability of species to tropical climates.

I.—SHORT, B. F. (1955). Development of the secondary follicle population in sheep.—*Aust. J. agric. Res.* 6, 62-67. **3810**

II.—SCHINCKEL, P. G. (1955). The post-natal development of the skin follicle population in a strain of Merino sheep.—*Ibid.* 68-76. **3811**

I.—S. traced the maturation of secondary wool follicles from birth to 168 days in Merino and Merino cross sheep by examining changes in the ratio (S/P) of immature and mature fibre-producing secondary follicles to mature primary follicles. At birth all the secondary follicles were present. The maturation of these follicles reached a maximum rate at 7-21 days after birth. At 28 days approx. 65% of the secondary follicles contained fibres. He concluded that the adult S/P fibre ratio is set pre-natally and any restriction of the number of secondary follicles initiated is a permanent effect not amenable to improvement post-natally.

II.—Post-natal wool follicle development was studied in 3 groups of sheep from a strain of Australian Merino. The total number of primary follicles remained constant from birth to 16 months of age and possibly thereafter. This constancy with time of the number of primary follicles supports the validity of the S/P ratio as a measure of secondary follicle development. There was a small increase in the S/P ratio during the first week, a large increase during the second, and a progressive decline thereafter. At one month of age 70-80% of the secondary follicles had reached maturity.—A. G. LYNE.

MELLINKOFF, S. M. & SONNENSCHN, R. R. (1954). Identity of sweat glands stimulated by heat, epinephrine, and acetylcholine.—*Science*. **120**, 997-998. **3812**

Photographs were taken of the spots developed in an iodine-starch emulsion by sweating in the forearm skin of two human subjects in which activity of the sweat glands had been stimulated by exposure to an infra-red lamp or by intradermal injection of epinephrine or of acetylcholine. Projections of the photographs were superimposed and statistical analysis was made of the ratios coincident/total spots. It was found that coincidence of patterns evoked by differing stimuli was equal to that produced by the same stimulus at differing times.—A. SEAMAN.

SHOLL, D. A. (1955). The organization of the visual cortex in the cat.—*J. Anat., Lond.* **89**, 33-46. **3813**

Neurones whose axons leave grey matter with apical dendrites in the outermost cortical zone form the largest group and are found at nearly all depths. Those with axonal ramifications within their own dendritic field are usually found among terminations of afferent fibres from thalamus together with deep-lying pyramidal cells. Neurones with recurrent collaterals are prominent in lower cortex. Afferent fibres may be (1) from lateral geniculate body; each fibre can influence 0.1 cu. mm. of cortex (5,000 neurones); (2) commissural and associations of uncertain origin; (3) very fine axons in outermost cortical zone. Destinations of efferent fibres are indefinite.

—R. N. SMITH.

TURNER, H. G. (1955). Changes in capacity of the udder of the dairy cow during the course of lactation.—*Aust. J. agric. Res.* **6**, 145-160. **3814**

Both intramammary pressure and total milk yield (including residual milk) were

determined after various milking intervals of up to 40 hours, at several stages of lactation in 7 cows.

Maximum yield ("udder capacity") at each stage decreased during lactation in proportion to the decline in daily milk yield. Intramammary pressure increased sharply as "udder capacity" was approached. Pressure when the udder was full ("secretion pressure") decreased as lactation advanced, as did capacity at a given intramammary pressure.

T. discussed the relative importance of these findings in relation to the lactation curve and to the effect of milking interval upon secretion.—G. ALEXANDER.

TURNER, H. G. (1955). Sources of variation in residual milk and fat in dairy cows: their relation to secretion rates and persistency of lactation.—*Aust. J. agric. Res.* **6**, 514-529. **3815**

Residual milk and fat were estimated at milkings following intervals of 10, 14 and 24 hours at two stages of lactation in 12 cows. Residual milk was recovered after injection of anterior pituitary extract.

Amount of residual milk was found to be related to total yield, with regression coefficient partly dependent on the above variables.

The mean amount of residual milk was independent of stage of lactation, averaging 17.8% for milking at both 10 and 14 hours, but was 13.9% at 24 hours.

Independently of difference in yield, there was a high negative correlation between amount of residual milk and persistency of lactation. Differences in amount of residual milk accounted for 75% of the variation in persistency.

Fat percentage of residual milk differed between cows, between stages of lactation and between milking intervals.

These data were used to show that increasing the interval from 10 or 14 hours to 24 hours depressed secretion rate by 15% but increased percentage fat in milk secreted. There was a transient depression in secretion rate following the long interval.—G. ALEXANDER.

MANENTE, B. A. (1954). Contribución al estudio de los dispositivos termo-reguladores de la glándula mamaria de los bovinos. [The thermo-regulating mechanism in the mammary gland of the cow.].—*Rev. Vet. Milit., B. Aires*. **2**, 218-219. O.a.g. [English summary in *Summ. of Communications. IInd Pan-Amer. Congr. vet. Med.*, S. Paulo. April 3-10, 1954. Sect. D. pp. 3-4. Mimeographed.] **3816**

Before milking, the internal mammary gland temperature in the cow lies between ambient and rectal temperatures; this increases during milking. There is a local thermo-regulating mechanism in the gland.

—F. R. PAULSEN.

MORICONI, A. (1954). Dispositivi regolatori del circolo nella ghiandola mammaria. [**Mechanisms regulating the blood supply to the mammary glands of sheep and goats.**]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo*, 1953. **7**, pp. 358-365. [English and French summaries.] **3817**

Arterio-venous anastomoses, and "block mechanisms" (illustrated) are described in the fibrous capsule of the udder in sheep and goats. M. believes that milk distension compresses the "cushion arteries", thereby decreasing the inflow of blood and consequently decreasing secretory activity. No evidence of the presence of such structures was found in bovine tissue. The block mechanisms are small pads of myoepithelioid tissue, derived from the intima, which give the lumen of the arteriole a characteristic stellate form in transverse section.—F. L. M. DAWSON.

FILOTTO, U. (1953). Processi evolutivi ed involutivi della ghiandola mammaria in rapporto alla sua azione. [**Histological changes in the mammary glands of sheep at different stages of lactation.**]—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 265-271. [English and German summaries.] **3818**

Observations on 32 sheep in different stages of mammary development, revealed that when the lactation period ceases the epithelial cells do not disappear but collect around the excretory ducts, where the new glandular tubules and alveoli will develop in a later pregnancy. This development consists of irregular proliferation of tubules and alveoli. Subsequently, connexions are established with the excretory ducts.—I. MARTINI.

SCHNEIDER, C. L., CLAXTON, E. B., HUGHES, C. H. & JOHNSON, S. A. (1954). **Bovine platelets in large quantities. Properties and activities concerned with hemostasis.**—*Amer. J. Physiol.* **179**, 236-242. **3819**

A method for obtaining bovine platelets and platelet extracts is described. Extracts were used to investigate vasoconstrictor, retractive and plasma, platelet and "fibrinogen" coagulating factors. Platelet action is confined by physiological safeguards to local haemostasis and thrombosis.—JOHN SEAMER.

FENICHEL, R. L. & SEEGER, W. H. (1955). **Bovine platelets, serotonin and the retraction of bovine plasma clots.**—*Amer. J. Physiol.* **181**, 19-20. **3820**

From studies of the retraction of bovine plasma clots the authors concluded that the factor responsible for the phenomenon was a dialysable substance, serotonin, contained in the blood platelets.—T. E. GATT RUTTER.

WEHMEYER, P. (1954). **Concentration of plasma proteins in the ox. II. Variation in composition of the blood in the individual animals.**—*Nord. VetMed.* **6**, 818-824. [In English. Danish and German summaries.] [For part I, see *V.B.* **25**, 3307.] **3821**

The daily, monthly and yearly variations of serum protein, albumin, globulin and fibrinogen, sedimentation rate and cell volume in the blood of 8 cows were determined and analysed. The significance was discussed.

—JOHN SEAMER.

MESCHIA, G. (1955). **Colloidal osmotic pressures of fetal and maternal plasmas of sheep and goats.**—*Amer. J. Physiol.* **181**, 1-8. **3822**

M. measured the colloidal osmotic pressure (c.o.p.) and the plasma proteins in maternal and foetal blood of sheep and goats. The c.o.p. of the maternal blood was higher than that of the foetal blood, especially in the early stages of pregnancy. The mean molecular weight (m.m.w.) of the foetal proteins was approx. half of that of the maternal proteins. In the new-born lamb colostrum brought about a rapid increase in the m.m.w. of the plasma proteins. This did not happen when the lamb was fed cow's milk.—T. E. GATT RUTTER.

AMBRUS, C. M., AMBRUS, J. L., JOHNSON, G. C., PACKMAN, E. W., CHERNICK, W. S., BACK, N. & HARRISSON, J. W. E. (1954). **Role of the lungs in regulation of the white blood cell level.**—*Amer. J. Physiol.* **178**, 33-44. **3823**

In Starling heart-lung preparations, cross circulation experiments, long and short range catheterization experiments, and single blood samples, white blood cells were rapidly removed from the blood whilst circulating through the lungs of dogs until a certain level was reached which was then maintained.—A. ACKROYD.

POSTIGLIONI GRIMALDI, J. (1954). Estudios anatómicos sobre la terminación de la carótida primitiva del caballo. [**Variations in the terminal branching of the primitive carotid trunk in the horse.**]—*An. Fac. Vet. Montevideo.* **6**, No. 2, pp. 93-116. [English, French and German summaries.] **3824**

The author studied the situation, the terminal branching and the course and size of the branches, of the primitive carotid artery in the horse. In 42 out of 49 horses it was posterior; in 5 it was medial; and in 2 it ran along the anterior border of the posterior belly of the digastricus muscle.

—F. R. PAULSEN.

HELLMANN, K. (1955). **Spontaneous microscopic activity in cardiac muscle.** [Correspondence.]—*Nature, Lond.* **157**, 212-213. **3825**

A preliminary note on spontaneous minute contraction waves in cardiac fibres. These are present in isolated pieces of tissue and, in the rabbit, have been seen after 6 days' storage at 4° C.—A. SEAMAN.

DETWEILER, D. K. (1955). **Contraction of the diaphragm synchronous with the heartbeat in dogs.**—*J. Amer. vet. med. Ass.* **126**, 445-448. [Author's summary modified.] **3826**

D. reported the occurrence in 4 dogs out of 33,092 examined during 6 years, of diaphragm contractions synchronous with the heart-beat. He postulated that this condition is caused by stimulation of the phrenic nerves by electric currents from the heart. In 3 of the dogs, the hyperirritability of the phrenic nerves was probably due to alkalosis resulting from persistent vomiting. Compression of the thorax over the heart temporarily abolished the contractions in the one case in which this was done.

PHILLIPSON, A. T. (1954). **De bewegingen van de tractus digestivus bij de herkauwers.** [The physiology of the digestive system of sheep.]—*Vlaam. diergeneesk. Tijdschr.* **23**, 113-122. [English, French and German summaries.] **3827**

A general discussion on the literature, including the author's own published work. —C. A. VAN DORSSEN.

MORRIS, P. G. D. (1954). **The goblet cells of the large colon of the horse.**—*J. comp. Path.* **64**, 97-101. **3828**

Tracings from photographs of sections from the right dorsal and ventral colon of six horses were made on graph paper. Counts of the goblet cells within given areas revealed that they were more numerous in the right dorsal colon than in other areas, the difference being statistically significant. This was not due to differences in the thickness of the mucous membrane.—A. SEAMAN.

SELLWOOD, R. V. & VERNEY, E. B. (1955). **Enumeration of glomeruli in the kidney of the**

dog.—*J. Anat., Lond.* **89**, 63-68. **3829**

It is concluded that a method of maceration with hydrochloric acid and examination of samples, taking 2-3 days, is a reliable guide as it gives results agreeing with those obtained by histological methods taking 6 months.

—R. N. SMITH.

VAN TRAPPEN, W. (1955). **De histotopochemie der alkalische phosphatase in de normale zoogdieren-epiphysis.** [Alkaline phosphatase content of the pineal body in large mammals.]—*Vlaam. diergeneesk. Tijdschr.* **24**, 60-69. [In Flemish. English, French and German summaries.] **3830**

Histological examination by Gomori's method of 2 epiphyses of cattle, 2 of pigs, 1 of sheep and 2 of horses indicated that the phosphatase activity of the parenchymatous cells was principally localized in the nuclei.

—C. A. VAN DORSSEN.

KAINER, R. A. (1954). **The gross anatomy of the digestive system of the mink. I. The headgut and the foregut. II. The midgut and the hindgut.**—*Amer. J. vet. Res.* **15**, 81-90 & 91-97. **3831**

Eruption of deciduous teeth occurs between three and four weeks, that of permanent teeth between six and ten weeks. The mandibular, zygomatic, and ventral buccal glands are mixed and predominantly mucous; the parotid is serous and the major sublingual gland mixed. Palatine tonsils are exposed and flap-like. The large pancreatic duct joins the ductus choledochus. The caecum is absent; anal sacs are present.—R. N. SMITH.

WATSON, M. L. & AVERY, J. K. (1954). **The development of the hamster lower incisor as observed by electron microscopy.**—*Amer. J. Anat.* **95**, 109-161. **3832**

Among other important points it was shown that mitochondria and endoplasmic reticulum are found only on the pulp side of the pre-dentinal border; a true odontoblast extension passes into, and fills, the pre-dentinal tubule. Enamel appears to be formed in the ameloblasts as opposed to dentine, which occurs outside the odontoblast cell wall.

—R. N. SMITH.

FOOTE, C. L., NORMAN, W. P. & FOOTE, F. M. (1954). **Formation of the extra-embryonic cavities of the hamster.**—*Amer. J. Anat.* **95**, 291-307. **3833**

This account refers to development between the time of implantation and the early recogni-

tion of embryonic body form. Particular attention is directed to the complementary order of appearance of intra- and extra-embryonic cavities.—C. W. OTTAWAY.

GRAU, H. (1954). Gedanken über die gegenwärtige Sicht der Anatomie am Beispiel des

Nervensystems. [Contemporary trends in anatomy. The nervous system.]—*Tierärztl. Umsch.* 9, 75-81. 3834

G. suggests the phylogenetic story outlined by study of the nervous system as a suitable example for anatomical thought.

—C. W. OTTAWAY

See also absts. 3746 (methane production in rumen); 3747 (ruminant digestion); 3900 (book, anatomy).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

Bos, A. W. A. (1955). Dierenarts en vleeswarenskeuring. [The veterinary surgeon and the inspection of meat and meat products.] *Tijdschr. Diergeneesk.* 80, 471-503. 3835

B. discussed the position of the veterinary surgeon in the meat-product industry (a) as official inspector and (b) as commercial adviser. He described methods of examination for the presence of putrefying meat, of meat originating from diseased animals or from animals that have died before they could be slaughtered, of inadmissible parts of carcasses, of faecal matter, or of adulterants.—C. A. VAN DORSSEN.

ANON. (1954). Analytical methods committee. Report of the lead panel of the metallic impurities in foodstuffs sub-committee. The determination of lead in foodstuffs.—*Analyst.* 79, 397-402. 3836

Details were given of the method of detecting minute traces of lead in foodstuffs. The main difficulty is that of obtaining reagents and glassware free from significant traces of lead.—R. MACGREGOR.

KUHN, G., TRUM, B. F. & RUST, J. H. (1954). The use of ionizing radiation in food preservation and parasite destruction—a survey.—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 431-434. 3837

The preservation of food by means of ionizing radiations was considered possible, but certain major problems still remained to be solved, viz., undesirable flavour changes, lack of information on the toxicology of radiation, and limited availability of fission products.

—T. E. GATT RUTTER.

PROKHOROV, M. I. & BOBOVICH, V. T. (1954). [Bacterial cultures lethal to rats.]—*Veterinariya, Moscow.* 31, No. 6, pp. 49-52. [In Russian.] 3838

The authors prepared a medium for culturing bacteria used for rodent destruction, using meal prepared from various cereals. The titre of bacteria in the cultures ranged from

3-7 thousand million per g. Methods of preparing the cultures and relevant details were given.—F. A. ABBEY.

CHILDS, T. (1954). Duties and responsibilities of the Health of Animals Division, Department of Agriculture, Canada.—*Canad. J. comp. Med.* 18, 184-190. 3839

The organization originated in 1869. It was formally established at the beginning of the 20th century and took up meat inspection in 1907. The Division employs 1,300 people, 600 of whom are veterinarians. Canada is divided into 7 districts. C. outlined the duties and responsibilities of the Division.

—R. GWATKIN.

ANON. (1954). Jubileum Rijksseruminrichting. [Jubilee of the State Serum Institute, Rotterdam.]—*Tijdschr. Diergeneesk.* 79, 173-190. 3840

The Rijksseruminrichting (State Serum Inst.) Rotterdam, was founded in 1904 by J. Poels in an old stable building with 15 serum horses, hired from a tramway company. This is a historical survey of its 50 years' work with photographs of the old and of the new buildings.—C. A. VAN DORSSEN.

RYSZKOWSKI, S. (1954). Zaopatrzenie sluzby weterynaryjnej i zootechnicznej. [Veterinary services and zootechny in Poland.]—*Méd. vét., Varsovie.* 10, 441-445. [In Polish.] 3841

A Central Veterinary Institute was set up as an autonomous branch of the Ministry of Agriculture. Its first task was the standardization of the names of all surgical instruments. Within a few years the Institute had built up a new industry and was able to supply the profession with pharmaceutical preparations, antibiotics etc., as well as with instruments. Whereas 91.6% of the drugs and instruments had been imported up to 1945, by 1954 only 9.8% were imported, the remainder being home-produced.

—J. R. MITCHELL

DIMITROV, N. (1954). [Successes of the veterinary service in the People's Republic of Bulgaria and the future problems in protecting the health of farm animals.]—*Veterinariya, Moscow*. 31, No. 12, pp. 51-55. [In Russian.] 3842

It appears that the keeping of livestock has made great progress since 1944 when the situation was desperate. In the first five-year plan, organization of state and co-operative farms was in hand; many epizootics were brought under control. TB. and brucellosis have now been much reduced. The treatment of non-infectious conditions, like infertility, is being tackled. The supply, by the state industry, of veterinary drugs and instruments is steadily improving in quality and quantity. The food industry is under veterinary control and laboratories for meat and milk control have been organized. Factories for the utilization of animal carcasses have been built. Veterinary research stations have been established, also an Institute of Veterinary Virology, and one for Breeding and Artificial Insemination. The principles of sound livestock keeping are popularized by pamphlets and courses. 120 veterinary surgeons qualify every year. The one feature which seems to differ fundamentally from the conventional organization of veterinary services is the establishment of hundreds of small veterinary centres all over the country. It is not clear what is the scope of these centres.

—A. MAYR-HARTING.

SUISOEV, A. A. & IPATENKO, N. G. (1955). [Veterinary services in the North Korean Republic.]—*Veterinariya, Moscow*. 32, No. 1, pp. 88-91. [In Russian.] 3843

Since hostilities ceased in North Korea, livestock keeping has much improved, particularly in the state and co-operative farms. In general, the state farms are specialized, whereas the co-operative farms occupy themselves with many branches of livestock keeping. The main effort is directed towards lowering the incidence of infections, particularly of haemospoidal infections; many pastures have already been cleared of shrubs; sheep are washed with arsenical preparations, cattle with D.D.T. Every district now has one or two veterinary centres. In times of urgent work in the fields, personnel is sent out from these centres to deal with any sick animals on the spot. All abattoirs are now controlled by veterinarians. A number of veterinary research institutes and experimental stations have been set up. One of the institutes controls the numerous vaccines and sera. Veterinary special-

ists are trained at the Veterinary Faculty of the Institute of Agriculture and at two technical colleges; a third will be opened shortly.

—A. MAYR-HARTING.

I.—TRAWSKI, A. (1954). Wydział Weterynaryjny Uniwersytetu MCS w Lublinie w okresie 10-ciolecia. [The veterinary faculty of the Marie Curie Skłodowska University of Lublin during 1944-54.]—*Méd. vét., Varsovie*. 10, 377-387. [In Polish.] 3844

II.—SZWEJKOWSKI, H. (1954). Wydział Weterynaryjny Warszawski w latach 1944-1954. [The veterinary faculty of Warsaw during 1944-54.]—*Ibid.* 387-397. [In Polish.] 3845

III.—ZAKRZEWSKI, A. (1954). Wydział Medycyny Weterynaryjnej Uniwersytetu im. Bolesława Bieruta i Wydział Weterynaryjny Wyższej Szkoły Rolniczej we Wrocławiu w okresie 10-ciolecia. [The veterinary faculties of Bolesław Bierut University and of the Agricultural College, at Wrocław during the last 10 years.]—*Ibid.* 398-408. [In Polish.] 3846

I.—The Veterinary Faculty at Lublin was founded in 1944 and began work under rather primitive conditions, many of the departments being accommodated in one room. In 1946 the Faculty included the following Departments, each headed by a Professor:—Anatomy, Microbiology, Pathology, Zoology with Parasitology, Epizootology, Medicine, Hygiene of Foods of Animal Origin, Chemistry, Surgery with Orthopaedics, and Obstetrics. In addition lecturers on the following subjects were seconded to the Faculty:—Animal Husbandry, Physics, Applied Anatomy, Jurisprudence; special lectures are given on the Army Veterinary Service, besides political indoctrination and the Russian language.

II.—The former buildings of Warsaw Veterinary Faculty were occupied by a hospital and although the Faculty was reopened in 1944 it was not until 1946 that it was ready to receive students from 1st to 4th year (the length of the course being fixed at 4 years).

The teaching staff consisted of 12 professors, 13 senior lecturers, 23 lecturers, 23 assistants, 15 technical assistants, a photographer and 27 lay staff.

In the session 1946/47 the number of students attending was 220, including 41 women; in 1953/54 the number increased to 420. The Faculty publishes its own textbooks and aids for the use of students—in addition every department is obliged to publish some

outstanding work completed during each session.

III.—This Veterinary Faculty was brought into being in 1945 and was actually built from ruins with the help of students. The number of

students increased from 227 in 1945 to 737 in 1953. The total number of degrees conferred up to the 31st March 1953 was 939.

—J. R. MITCHELL.

See also absts. 3545-3546 (brucellosis in veterinarians and abattoir personnel); 3630 (Western equine encephalomyelitis virus infection in man); 3672-3674 (psittacosis in poultry farm personnel); 3886 (control of foxes and dogs in Australia).

LIVESTOCK HYGIENE

LANCASTER, J. E., GORDON, R. F. & HARRY, E. G. (1954). Studies on disinfection of eggs and incubators. III. The use of formaldehyde at room temperature for the fumigation of eggs prior to incubation.—*Brit. vet. J.* **110**, 238-246. [Abst. from authors' summary.] **3847**

The authors studied the effectiveness of formaldehyde fumigation when carried out in air-tight chambers maintained at atmospheric temperatures and humidity. When fumigation is carried out for a period of 20 min., $3\frac{1}{2}$ oz. formal per 100 cu. feet capacity produced a gas concentration sufficient to kill *S. pullorum* on the surface of the hen's egg. In practice, 4 oz. per 100 cu. ft. is advised for the purpose. To kill *S. pullorum* after 10 min. exposure $5\frac{1}{4}$ oz. formal per 100 cu. ft. is required.

They described the practical application of formaldehyde estimation in the field. Leakage and poor distribution of the liberated gas were found to be important factors influencing the

efficiency of the pre-incubation fumigation equipment of the two commercial hatcheries concerned in this report.

The hatchability of fertile eggs did not appear to be affected when fumigated before incubation for 60 min. at a conc. of 22 mg. formaldehyde per cu. ft. at 20 min.

TEKLINSKA, M. & TEKLIŃSKI, A. (1954). Wpływ dezynfekcji niektórymi plynnyymi srodkami odkazajacymi na wylgowosc jaj. [Effect of some disinfectants on the hatchability of eggs.]—*Méd. vét., Varsovie*. **10**, 86-87. **3848**

In laboratory tests on the hatchability of hen's eggs following immersion in disinfectant solns., formal and phenol were used in concentrations of 5%, 10% and 20%. In the control group water was used. Phenol and formal even in conc. of 20% did not affect the hatchability. The tests were later confirmed by field trials.

—J. R. MITCHELL.

REPRODUCTION AND REPRODUCTIVE DISORDERS

BANE, A. (1954). Sexual functions of bulls in relation to heredity, rearing intensity and somatic conditions.—*Acta agric. scand.* **4**, 95-208. [In English.] **3849**

Six pairs of identical twin bulls of unknown pedigree were used, but only 2 pairs survived the whole 7-year course of the experiment. Real differences in semen production throughout occurred only in 3 of the pairs, and even so, this was attributed to the effects of traumatic pericarditis in one bull, and to only temporary effects of wide variations of rearing intensity in the others. As between the different pairs, genetic factors appeared to affect most aspects of semen production. With regard to mating behaviour also, twin brothers were extraordinarily alike, but variations between the pairs were very wide.—F. L. M. DAWSON.

V. D. SLUIS, L. & V. D. SCHAAF, A. (1954). Het verzamelen van sperma bij rammen door electrische prikkeling (methode Gunn). [Collection of semen from rams by electrical stimulation.]—*Tijdschr. Diergeneesk.* **79**, 966-971. [English, French and German summaries.] **3850**

The semen of 110 rams was collected by electrical stimulation using the method described by Gunn. One electrode was placed in the rectum, the other on the skin in the lumbar region. Muscular spasms and evidence of pain were observed. After a journey of 20 km. by motor car to the laboratory more than 50% of the animals did not ejaculate the same day.

—C. A. VAN DORSSEN.

SZUMOWSKI, P. (1954). Essais de congélation du sperme de cheval. [Storage of stallion semen at -79° C.]—*C. R. Acad. Agric. Fr.* **40**, 156-161. **3851**

Stallion semen diluted 1:1 with glucose-egg yolk diluent, with streptomycin added, was stored at -79° C. for up to 2 months: 80-100% of the spermatozoa revived when the semen was thawed.—R.M.

DE GROOT, B. & HENDRIKSE, J. (1954). Een proefneming met diepvriessperma. [An experiment on the deep-freezing of semen.]—*Tijdschr. Diergeneesk.* **79**, 910-922. [English, French and German summaries.] **3852**

Bull semen was deep-frozen by a modifica-

tion of the method described by Polge [V.B. 22, 3201; 23, 1732, 2109]. The conception rate decreased from 76.9% with semen frozen for one day to 45.5% with semen after 3 months' freezing. Succinylsulphathiazole had been added to the buffer as a bacteriostatic agent before freezing and this may have had a deleterious effect on the spermatozoa [cf. Dunn *et al.* (V.B. 24, 268)].

—C. A. VAN DORSSEN.

HEWETSON, R. W. (1955). Storage time as a factor limiting the fertilizing capacity of diluted bovine semen stored at 5° C.—*Aust. vet. J.* 31, 129-131. [Author's summary copied *verbatim*.] 3853

A decrease in fertilizing capacity of bovine semen stored at 5° C. has been recorded. The decrease from the first day to the third day is highly significant. In practice, the deterioration of fertilising capacity of semen has been constant between bulls. The decline is relatively small up to 32 hours, increasing markedly up to 56 hours.

BLACKSHAW, A. W. (1955). The effect of equilibration and the addition of various sugars on the revival of spermatozoa from -79° C.—*Aust. vet. J.* 31, 124-128. [Author's summary copied *verbatim*.] 3854

The equilibration of bull spermatozoa in a glycerol medium for 18 hours before freezing does not increase revival. The use of 7.5% glycerol and 1.25% arabinose is much superior to 10% glycerol used alone. The addition of 1.25% arabinose to 7.5% glycerol increases revival rate and activity in both ram and bull semen after freezing. Arabinose or fructose appears to give best results with ram semen and arabinose the best results with bull semen.

LOEWE, S. (1954). Potentiation of drug-produced ejaculation by β -diethylaminoethyl-diphenylpropylacetate (SKF No. 525A).—*J. Pharmacol.* 110, 271-276. 3855

β -Diethylaminoethyl-diphenylpropylacetate enhances both the hypnotic and the ejaculatory effectiveness in mice of a combination of yohimbine and butyl β -bromoallylbarbituric acid.—W. R. BETT.

DUN, R. B. (1955). Puberty in Merino rams.—*Aust. vet. J.* 31, 104-106. [Author's summary modified.] 3856

Thirty-seven Merino rams 168—213 days old, raised on natural pasture during a poor season at Trangie, N.S.W., were examined for evidence of puberty. Ten were either very

close to, or had just passed, the age of puberty; their average age was 200 days (185—213) and the av. body wt. was 63 lb. (54—73). There was a correlation of 0.81 between the onset of spermatogenesis as determined by testicle palpation and the breakdown of adhesions between penis and prepuce. The sexual maturity of a young ram can be assessed by examination of testes and penis. A freely movable penis combined with plump firm testes indicates that puberty has been reached. Body wt. is a better guide to sexual maturity than age, but both measurements show extreme irregularity.

DUN, R. B. (1955). The cervix of the ewe—its importance in artificial insemination of sheep.—*Aust. vet. J.* 31, 101-103. [Author's summary copied *verbatim*.] 3857

A description is given of the cervixes of 112 Merino ewes of mixed ages noting the position of the external cervical opening. The cervixes of maiden ewes are classified and the changes with pregnancy and parturition noted. It is concluded that: (a) When artificially inseminating maiden ewes an experienced operator could locate the orificium externum uteri in 100% of cases. (b) With aged ewes semen could be deposited in the beginning of the cervical canal 70% of the time if certain methods of locating the cervical opening are followed.

RADFORD, H. M. & WATSON, R. H. (1955). Changes in the vaginal contents of the Merino ewes throughout the year.—*Aust. J. agric. Res.* 6, 431-445. 3858

In over 200 oestrous cycles in 25 ewes, the sequence of changes in macroscopic nature of vaginal contents was characterized by:—presence of mucus during oestrus, the appearance of cheesy material within 3 days following oestrus, and replacement of this by a relatively clear serous material, usually in smaller amounts. Some such vaginal cycles were observed in the apparent absence of oestrus. During periods of reduced sexual activity a high proportion of oestrous periods occurred, unassociated with, or associated abnormally with, a regular sequence of vaginal changes. It is concluded that a series of consecutive daily samples of vaginal contents may provide evidence of ovarian activity in the ewe.—G. ALEXANDER.

DOWLING, D. F. (1954). The induction of ovulation in cattle.—*Aust. vet. J.* 30, 240-244. 3859

Dairy cows were brought into oestrus by

the enucleation of the corpus luteum. In 90% of the cows oestrus occurred within 2-4 days of the operation. The use of this technique ensures the more economical use of bull semen when it is transported for long distances over a period of days. The fertility of the treated animals was normal.—A. W. BLACKSHAW.

SCHAFFENBURG, C. A. & McCULLAGH, E. P. (1954). Studies in sperm hormones: demonstration of estrogenic activity.—*Endocrinology*. **54**, 296-302. [Authors' summary modified.] **3860**

Oestrogenic activity was demonstrated in extracts prepared from bull semen, which caused vaginal cornification and increase in uterine weight in the spayed, adult albino rat. The possible presence in these extracts of an augmentor or synergist of oestrogenic action is indicated by the increased activity demonstrated by crude phenolic fractions as compared to that of purified phenolic material.

KAHN, R. H. (1954). Effect of locally applied vitamin A and estrogen on the rat vagina. *Amer. J. Anat.* **95**, 309-335. **3861**

Intravaginal instillation in rats of α -oestradiol produces typical keratinization. This is inhibited when crystalline vitamin A is applied locally. Rats treated with vitamin A + oestrogen show histologically stratified cuboidal epithelium rather than the typical oestrogen-induced cornification. It is suggested that vitamin A may play a general role in the prevention of all keratin formation.

—W. R. BETT.

MCDONALD, L. E. (1954). Diagnosis of oviduct patency in the cow.—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 402-404. **3862**

M. described a technique for the diagnosis of patency of the oviduct in the cow by i/p injection of soluble starch and subsequent examination of stained vaginal swabs. Of 9 heifers under test 8 voided starch granules on the 2nd, 3rd or 4th day after injection.

—T. E. GATT RUTTER.

ANON. (1955). Comité voor steriliteitsbestrijding veeartsenijsschool—Gent. Verslag over het werkjaar 1954. [Report of the Committee for the control of sterility at the Ghent Veterinary College, for 1954.]—*Vlaam. diergeneesk. Tijdschr.* **24**, 69-80. [In Flemish. English summary.] **3863**

Special investigations were made on the microscopic and serological diagnosis of *Vibrio*

fetus, treatment of *V. fetus* infection in bulls, artificial insemination with semen of vibrio-infected bulls, and the economic importance of sterility in the cow.

During the course of clinical examination of bulls, *Trichomonas* infection was diagnosed in 44, *V. fetus* infection in 35, and mixed infection with both organisms in 4 bulls. Degeneration of the seminiferous epithelium was diagnosed in 22 bulls. A bull that failed to mount was found to have vertebral TB. Oligospermia was present in 16 bulls. In three herds enzootic sterility of unknown aetiology was observed. Many individual cases of bovine sterility were examined and treated.

The semen of an infertile stallion contained organisms resembling brucella. The serum agglutination titre for brucella was 1:1280, and that of the semen 1:40. Treatment with chloramphenicol was successful.

Treatment of sows with stilboestrol, administered by mouth or as an ointment, resulted in abnormal oestrus lasting sometimes for 3 weeks, which was only rarely fertile. Haemorrhage from the urethra following coitus was observed in 4 boars.—C. A. VAN DORSSEN.

KNUDSEN, O. (1954). Cytomorphological investigations into the spermiocytogenesis of bulls with normal fertility and bulls with acquired disturbances in spermiogenesis.—*Acta path. microbiol. scand. Suppl.* No. 101. pp. 79. [In English.] **3864**

In fertile bulls spermiogonia are of two different kinds in respect of morphology and cell division: A-spermiogonia which form new A- or B-spermiogonia on division, and B-spermiogonia which form primary spermiocytes on division. In bulls with acquired disturbances in spermiogenesis examination of the primary spermiocytes reveals vacuolation of cytoplasm and degeneration of centrosomes. In severe disturbances no spindle is formed. The ejaculate contains these pathological cell types:—pathological head forms; pycnotic nuclei; cells without visible nuclei; restitution nuclei.

—W. R. BETT.

HAWK, H. W., WILTBANK, J. N., KIDDER, H. E. & CASIDA, L. E. (1955). Embryonic mortality between 16 and 34 days post-breeding in cows of low fertility.—*J. Dairy Sci.* **38**, 673-676. [Authors' summary modified.] **3865**

A study was made to determine the percentage of repeat-breeder cows with normal embryos after 16 days' gestation and the embryonic death rate between the 17th and 35th days. Apparently normal embryos were

recovered from the uterus in 29 of 50 repeat-breeder cows slaughtered 16 days after the first day of heat; 50 repeat-breeder cows at 34 days had 14 normal embryos. The estimated incidence of embryonic death from 16 to 34 days was 51.7%.

NEVEU. (1954). Traitement de la non-délivrance des vaches par le chlorure de magnésium. [Treatment of retained placenta in the cow with magnesium chloride.]—*C. R. Acad. Agric. Fr.* **40**, 307-312. Discussion: pp. 312-314. **3866**

N. claimed good results for the treatment of retained placenta by the oral administration of 20 g. exsiccated magnesium chloride in a litre of water, twice daily for up to 5 days.—R.M.

RAINEY, J. W. (1955). Post-parturient rupture of the round ligament (ligamentum teres) of the hip joint in cows.—*Aust. vet. J.* **31**, 107-109. **3867**

R. presented 6 case histories of complete or almost complete rupture of the ligamentum teres in cows after fairly severe or very difficult parturition. In each case the ligament appeared to have suffered some degenerative change. Clinically the cases were very similar. The affected cows ate, drank and tried to rise. They refused to lie on the affected side and when abducted the limb bent very considerably at the stifle. Crepitus could also be heard on auscultation of the hip joint.—D. C. BLOOD.

MORRIS, B., BLOOD, D. C., SIDMAN, W. R., STEEL, J. D. & WHITTEM, J. H. (1954). Congenital lymphatic oedema in Ayrshire calves.—*Aust. J. exp. Biol. med. Sci.* **32**,

265-274. **3868**

Two cases of congenital oedema in Ayrshire calves are described with detailed clinical, biochemical and pathological findings. The disease appeared to be due to defective formation of the peripheral lymph nodes and their associated lymphatic vessels, and it is postulated that a developmental abnormality during early foetal life was responsible.—J. H. WHITTEM.

REEVE, E. C. R. & WADDINGTON, C. H. (1952). Quantitative inheritance. Papers read at a colloquium held at the Institute of Animal Genetics, Edinburgh University, under the auspices of the Agricultural Research Council, April 4th to 6th, 1950.—pp. 151. Agricultural Research Council; London: H.M. Stat. Off. 20s. **3869**

The papers in this booklet are on the whole heavy going, though lightened by some rather heated scientific polemics. Both plant and animal genetics are covered by papers whose variety illustrate the diverse interests of their authors. The papers will on the whole be intelligible only to readers thoroughly acquainted with statistics as well as with genetics, for a good deal of the matter might be described as mathematical genetics. The polemics concern environmental effects; statistics collected from public records and such like may easily be misinterpreted when environmental effects are markedly unequal in the different groups compared. This appears to be agreed by both disputants; their disagreements appear to relate to a number of side-issues. The authors of papers include, besides a number of British authorities, Sewall Wright of Chicago and Cavalli of Milan.—F. B. LEECH.

See also absts. 3570-3572 (epididymitis of rams); 3673-3764 (pregnancy toxæmia); 3772 (ovine genital infections).

ZOOECHNY

HANCOCK, J. & PAYNE, W. (1955). The direct effect of tropical climate on the performance of European-type cattle. I. Growth.—*Emp. J. exp. Agric.* **23**, No. 89, pp. 55-74. [Authors' summary slightly modified.] **3870**

Eight sets of identical-twin heifer calves were divided between Fiji and New Zealand. Feeding and management in the two countries were identical, the only difference to which the animals were subjected being that of climate. The growth and milk production of the animals from the age of 7½ months to the end of the first lactation was followed in both countries. This paper deals with differences in the growth of the two groups.

Growth, feed intake, and temperature differences were recorded during 5 arbitrary periods or phases, from 7½ to 24 months of age, and also at the end of the first lactation.

Except for an initial setback due to transportation and quarantine, the only appreciable depression in growth rates occurred during the period when the Fiji temperatures were at their highest and the apparent efficiency of feed conversion by the Fiji animals was at its lowest. The animals were 15 months of age at the beginning of this period. The induced size difference was maintained until calving, when the average difference in wt. was 84 lb. or

9.6%, but by the end of the first lactation it had been substantially reduced.

The check to growth in the Fiji animals appeared to be reasonably uniform, in so far as all body measurements except belly girth were adversely affected. The increase in belly girth in the Fiji animals was attributed to greater water intake, the water intake of the Fiji twins being approx. twice that of their New Zealand twins.

It was concluded that part only of the stunting usually apparent in European-type cattle, in the Sikatoka region of Fiji, may be attributed to the direct effect of climate.

There was evidence of a genotype-climate interaction indicating that individual European-type cattle differ in their suitability for tropical climates.

HUTCHINSON, J. C. D. (1954). **Evaporative cooling in fowls.**—*J. agric. Sci.* **45**, 48-59. **3871**

I.—H. considered that atmospheric humidity hindered the evaporative cooling of fowls less than that of man and the comfort of the former could not, therefore, be assessed from the latter's subjective impressions; in his opinion his experiments explained theoretically the success of evaporative coolers for poultry houses in practice.

II.—Investigations showed that evaporative loss increased with rectal temperature, reaching its maximum between 107° and 109° F., after which the rate of increase was slower. This relationship was not affected by sex. The maximum possible evaporative cooling of fowls was much less than that of man, somewhat less than that of the dog and it was greatly reduced in birds in poor condition. Time of day had no influence.—T. E. GATT RUTTER.

SYKES, R. L. & FRENCH, M. H. (1954). **The effect of certain drying conditions on the putrefaction of cattle hides and goatskins.**—*Colon. Pl. Anim. Prod.* **4**, 187-199. **3872**

In an investigation of the drying of cattle hides and of goat skins the effects of the following factors were studied:—open as against shade drying; the interval between flaying and cleaning; wet as against dry weather and the use of frames or wires.—S. E. FOX.

BLOM, T. (1954). **Methods of stunning and slaughter.**—*WHO/FAO Expert Committee on Meat Hygiene*. (WHO/Zoon/27.) pp. 10. [Mimeographed.] **3873**

A summary of the various methods of slaughter. B. recommended stunning by electric shock. For bleeding he recommended the use of

a knife attached to a suction tube so that the blood can be withdrawn without contamination. It is however necessary to mix such blood with an anticoagulant.—R. MACGREGOR.

ALEXANDER, G., McCANCE, I. & WATSON, R. H. (1955). **Some observations on losses among Merino lambs. Age at death, birth weight and duration of gestation of the lambs from one flock.**—*Aust. vet. J.* **31**, 85-90. [Authors' summary copied *verbatim*.] **3874**

Of 421 single lambs in one flock, 51 were either born dead or died within the first month after birth. Twenty-five of these 51 were classified as stillborn and 13 died before they were three days old. The other 13 died at various ages between seven and 28 days. The level of mortality was highest among the very light and the very heavy lambs. Almost all of these lambs died within three days after birth. The mean birth weight of the lambs which were classified as stillborn was greater than that of the survivors, and the mean birth weight of the animals which died after birth was less, particularly that of the animals which died within the first three days. The gestation periods of most of the animals which died were similar in length to those of the animals which survived. The significance of these findings is discussed.

TANEJA, G. C. (1955). **The effect of drought and type of birth on body weight of Merino sheep measured at different ages.**—*J. Aust. Inst. agric. Sci.* **21**, 26-29. [Abst. from author's summary.] **3875**

The results indicate that the 5, 11 and 17 months body weights of Merino lambs born early in spring are greater than those born late in spring; those born early or late in autumn had nearly the same body weights. Seasonal factors and lack of adequate nutrition due to drought have been suggested as possible explanations.

Statistical analysis of data for variation in body weights due to birth-type suggests that there is a significant difference of about 5 lb. between singles and twins at 5 months of age. There is a difference of only 2 lb. (non-significant) between singles and twins at 17 months as well as at 11 months.

CUNNINGHAM, I. J. (1955). **Lamb growth on pasture topdressed with a complex trace element mixture.**—*N.Z. J. Agric.* **90**, 239-240. **3876**

Many New Zealand farmers have gained the impression that, although no evidence of a trace

element deficiency may be available, the growth of lambs is improved by application of a commercial trace element mixture to the pasture on which they graze. Results of experimental applications of a mixture containing boron, zinc, manganese, copper, chromium, nickel and vanadium to pasture previously topdressed with cobalt did not, however, confirm this view.—W. H. PARR.

I.—REID, J. W. (1954). **Rearing pigs.**—*Vet. Rec.* **66**, 863-865. Discussion: pp. 873-878. **3877**

II.—TRIBE, D. E. (1954). **The nutrition of the baby pig.**—*Ibid.* 865-870. Discussion: pp. 873-878. **3878**

III.—HEBELER, H. F. (1954). **Pig diseases.**—*Ibid.* 870-873. Discussion: pp. 873-878. **3879**

I.—R. discussed the theoretically attainable production figures in pig-farming, and quoted figures from Hertfordshire and Buckinghamshire to show the losses which occurred in practice. Improvement was particularly necessary in the training of pigmen and in the provision of farrowing pens offering piglets warmth and protection from overlaying.

II.—T. referred to the heavy piglet mortality between birth and weaning and to the fact that, owing to the difficulty of early weaning, little work had been done on the nutritional requirements of the piglet in its first weeks. In his work at Bristol he removed piglets from their dams 24-48 hours after birth, and accustomed

them to a diet of meal with separate water by the 7th day after removal. On this diet they reached 40 lb. by the usual weaning age of 56 days. Normally-weaned piglets usually weigh only 30 lb. at this age.

There are several important aspects to this work: (1) Early weaning will enable the nutritional requirements of the piglet to be studied closely. (2) As a result of such research farmers may be able to wean their piglets at 3-4 days, and raise them on a standard commercial meal. (3) Losses from overlaying will be reduced. (4) Sows freed from their litters 3-4 days after parturition may be served at their first heat 7-10 days after parturition, thus introducing the possibility of three litters a year instead of two.

III.—In a brief paper on diseases of sows and piglets H. touched on puerperal fever, mastitis, agalactia through various causes, piglet anaemia, hypoglycaemia, ascaris infestation, and virus pneumonia.—A.S.

SMITH, D. M. (1954). **The Ruakura round farrowing house.**—*N.Z. J. Agric.* **89**, 267, 269 & 271-272. **3880**

S. described a small circular farrowing house, the central part of which is lamp-heated and provides a safe refuge for the piglets. The construction of the house obliges the sow to lie with her back to the wall and her udder close to the litter. Houses of this sort would be suitable for prefabrication.—A.S.

TECHNIQUE AND APPARATUS

NADEJE, T., BLUM, J. & HORSFALL, F. L. Jr. (1954). **An automatic tool for opening embryonated eggs.**—*Rev. sci. Instrum.* **25**, 293-294. [Reprinted in: *Stud. Rockefeller Inst. med. Res.* 149 (1954).] **3881**

The authors described an automatic trigger-operated circular steel punch for the rapid opening of embryonated eggs by making a clean cut, one inch in diameter, in the shell over the air sac.—T. E. GATT RUTTER.

DUTHIE, R. B. (1954). **A simple method for cutting sections from undecalcified bone for subsequent auto-radiography and microscopy.**—*J. Path. Bact.* **68**, 296-297. **3882**

The cleaned bone (after fixation and dehydration) is infiltrated with a warm solution of ester wax in ethylene-glycol-monoethyl ether ("cellosolve") and then embedded in wax. The resulting block is trimmed, mounted on the object clamp of the microtome and a strip of "sellotape", the width of the block but

slightly longer, is firmly pressed on to the surface of the block. A complete longitudinal section of bone supported by the sellotape can thus be obtained. D. considered that this technique was quick enough to prevent loss of isotope; it gave sections of 5-10 μ without curling, crumpling or breakage of bone tissue; floating out of the section on water was not necessary and leaching out of water-soluble isotopes was thus avoided.—T. E. GATT RUTTER.

ARNOLD, J. S. & JEE, W. S. S. (1954). **Embedding and sectioning undecalcified bone, and its application to radioautography.**—*Stain Tech.* **29**, 225-239. **3883**

A detailed account of the process together with illustrations of apparatus and results. The procedures for preparing strip film radioautograms of bone sections and subsequent staining of the preparations are given.

—D. POYNTER.

REID, D. D. (1954). The design of clinical experiments.—*Lancet*. **267**, 1293-1296. **3884**

An account of the methods of surmounting the many pitfalls of clinical experiments.

—D. POYNTER.

MEGALE, F. (1955). Peritoneoscopy in the cow.

—*Thesis, Cornell*. pp. 17. **3885**

See also *absts.* 3497 (gel diffusion precipitin technique for demonstration of staphylococcal enterotoxin); 3498 (resazurin test for mastitis); 3538 (ring test techniques); 3562 (cultivation of *V. fetus*); 3567 (staining of fungi); 3623 (cultivation of vaccinia virus); 3712 (flocculation test for trichinella); 3792 (diagnosis of thallium poisoning by paper chromatography).

MISCELLANEOUS

TOMLINSON, A. R. (1954). Aerial baiting against wild dogs and foxes in Western Australia.—*J. Dep. Agric., W. Aust.* **3**, 37-49. **3886**

The most favourable bait was bovine brisket fat, although when this was not available bovine udder tissue was used. Bait was processed in brine and cut into one-inch cubes. Half-grain tablets of strychnine were inserted into the centre of each cube, which was then wrapped in paper to improve handling and keeping qualities. Baits were dropped in dry weather around water holes, in gorges, and at the junction of dried water courses. They

were also dropped during the mating season when the dogs were likely to be less cautious in picking them up. Target baiting rather than continuous dropping was believed to be more suitable. The effectiveness of treatment was difficult to determine and such figures as the numbers of dead animals seen, scalps recovered and sheep lost were complicated by seasonal and other factors.

It was concluded that aerial baiting, if carefully planned and supported by some ground baiting was a successful method of reducing dog populations.—R. I. SOMMERVILLE.

REPORTS

GREAT BRITAIN. (1955). The Edinburgh and East of Scotland College of Agriculture. Report for the year ending 30th September 1954. pp. 135. Edinburgh: The College. **3887**

The routine diagnostic service continues to grow and is much appreciated by practitioners and others; altogether 1,145 P.M. examinations were carried out and 3,530 routine samples were examined.

The advisory service is greatly in demand; the diseases of cattle dealt with include:—INFERTILITY, SALMONELLA INFECTIONS, MASTITIS, CALF PNEUMONIA, HYPOMAGNEAEMIA, JOHNE'S DISEASE, etc.

In sheep, HELMINTHIASIS (including *Nematodirus* infestation), JOHNE'S DISEASE, ABORTION, "ORF" (CONTAGIOUS PUSTULAR DERMATITIS), ENTEROTOXAEMIA and TICK PYAEMIA amongst many others were investigated.

In pigs OEDEMA DISEASE, PNEUMONIA, piglet INFLUENZA, NECROTIC ENTERITIS and AGALACTIA in sows were dealt with. Advice was also given on conditions due to bad management and feeding troubles.

Investigations into the possibility of using

the complement-fixation test for the diagnosis of JOHNE'S DISEASE were continued and studies on SEPTICAEMIA in lambs, sheep DERMATITIS ("BORDER ORF"), so called STRAWBERRY FOOT ROT and ENZOOTIC ABORTION in ewes was in progress.—D. S. RABAGLIATI.

GREAT BRITAIN. (1954). The West of Scotland Agricultural College. Report on the work of the College for the year ended 30th September, 1954. pp. 61. Stirling: Jamieson & Munro Ltd. [Items of veterinary interest pp. 39-46.] **3888**

Veterinary Investigations are briefly discussed. Diseases of cattle investigated included fatal poisoning by *Oenanthe crocata* (water dropwort); MANGOLD POISONING, due to the reduction of nitrate to nitrite in the mangolds; LEAD POISONING from ingestion of lead paint; HYPOMAGNEAEMIA, treated successfully with magnesium; MASTITIS (no new findings); COPPER DEFICIENCY, treatment with CuSO_4 soln.; BRACKEN POISONING, treated with nicotinamide (results variable). Other diseases mentioned are SALMONELLOSIS; JOHNE'S DISEASE; COCCIDIOSIS; ACETONAEMIA; PARASITIC

GASTRITIS AND BRONCHITIS ; BLOAT ; HYPO-MAGNEAEMIA of calves ; MUSCULAR DYSTROPHY ; LOUSE INFESTATION.

Sheep diseases were mainly due to ecto- and endo-parasites and poverty of pastures.

Pig diseases mentioned are OEDEMA DISEASE, NECROTIC ENTERITIS, AGALACTIA in sows, SCOUR in piglets, SUPPURATIVE OSTEO-MYELITIS, SWINE ERYSIPELAS, "DANCING" DISEASE, MALNUTRITION in piglets and HERMAPHRODITISM in boars.—J. A. GRIFFITHS.

BASUTOLAND. (1955). Annual report of the Department of Agriculture, 1954. pp. 76.

Maseru, Basutoland: Agricultural Department. [Veterinary report pp. 17-20.] **3889**

The disease position was satisfactory. Some 65 smears were examined for ANAPLASMOSIS, only one being positive. To expedite the diagnosis of BILIARY FEVER and REDWATER, a certain amount of microscopic examination has been undertaken by medical officers in various districts.

Two outbreaks of ANTHRAX were confirmed, but in each only one death occurred. A serious outbreak of ANTHRAX in the Orange Free State adjacent to Basutoland gave rise to some anxiety, but no case occurred over the border.

One case of generalized TUBERCULOSIS was found in a cow. Other diseases met with were BLACKLEG, ANAPLASMOSIS and PIROPLASMOSIS, DOG DISTEMPER and FELINE ENTERITIS, and also some diseases of poultry. During the year approximately 2,000 cases were dealt with at the Maseru clinic.—D. S. RABAGLIATI.

COLONY OF SEYCHELLES. (1954). Annual Report of the Department of Agriculture for the year 1953. pp. 30. Victoria, Mahé, Seychelles: Govt. Printer. 3890

During the year the Stock Inspector operated the Veterinary Branch of the Department and also supervised Animal Husbandry activities.

Four hundred and thirty clinical examinations were carried out at the animal clinic and during private visits ; 100 Burdizzo castrations and 128 by the open method were performed as well as numerous minor operations and vaccinations.

Every opportunity was taken to explain preventive and control methods to owners of animals.—D. S. RABAGLIATI.

SOMALILAND PROTECTORATE. (1955). Department of Agricultural and Veterinary Services annual report 1954. [WATSON, J. M.] pp. 26. [Mimeographed.] 3891

Apart from PIROPLASMOSIS in the west and

an apparent increase of camel TRYPANOSOMIASIS, the year was a good one. Suramin ("antrypol") was the only drug used against trypanosomiasis.

Skin disease in sheep is kept in check by dipping and dip fluids are also used for spraying cattle and camels. RINDERPEST was present at the beginning of the year, but was successfully controlled by quarantine measures only.

BOVINE CONTAGIOUS PLEURO-PNEUMONIA was the most serious disease and was responsible for at least 350 deaths in cattle, either directly or through complications. It is hoped shortly to use a vaccine prepared at the Kabete laboratories.

ANTHRAX was common in cattle and was also seen in camels. Vaccination against it was successfully adopted.

RABIES vaccination and re-vaccination in dogs is now permitted.

The general progress in the Protectorate was retarded by lack of adequate staff.

—D. S. RABAGLIATI.

U.S.A. (1953). Los Angeles County Livestock Department report for 1952-1953. [WICKTOR, C. E.] pp. 60. Los Angeles: The County Livestock Dept. [Mimeographed.] 3892

A long list of diseases encountered included TUBERCULOSIS, ANTHRAX, BRUCELLOSIS, TETANUS, TRICHOMONIASIS in cattle, RABIES, SWINE FEVER, VESICULAR EXANTHEMA in pigs and EQUINE ENCEPHALOMYELITIS. The Livestock Department completed 29 years of service.—D. S. RABAGLIATI.

U.S.A. (1954). Nevada. Report of the Nevada State Department of Agriculture for the fiscal years ending June 30, 1953-1954. pp. 36. Carson City, Nevada: State Printing Office. 3893

There were no serious losses from disease.

No change has been made in the methods of control of BRUCELLOSIS, but there has been a tremendous increase in the number of calf vaccinations, especially in beef-range herds ; the total reached 73,347.

No case of bovine TUBERCULOSIS was recorded and out of 7,786 tuberculin tests carried out, only one reactor was recorded, but P.M. examination revealed no lesions.

Only one case of VESICULAR EXANTHEMA was reported in Nevada. Nevertheless, as the disease is carried by raw swill, co-operation with the Federal Government was decided on and on the 15th May, 1953, an ordinance came into force in Nevada making it compulsory effectively to heat all swill fed to pigs.

—D. S. RABAGLIATI.

BOOK REVIEWS

DAVIES, G. O. [Reader in Veterinary Pathology, University of Liverpool]. (1955). **Gaiger and Davies' veterinary pathology and bacteriology.** pp. viii+803. London: Baillière, Tindall & Cox. 4th Edit. 42s. **3894**

The fourth edition of this book contains little change or revision when compared with the previous edition of 1946 [V.B. 17, 913]. The two chapters on protozoan diseases have been revised and partly re-written by R. B. Griffiths, the main change being an expanded account of *Trichomonas*. The author is at present engaged in re-writing the whole work: the present is therefore in the nature of an interim edition to meet the immediate needs of students.—R.M.

MORAND, P. [Pharmacien chimiste de la Marine. Chef du Laboratoire de biologie de l'Hôpital Sainte-Anne, Toulon]. (1955). *Evolution des Sciences. No. 5. Aux confins de la vie. Perspectives sur la biologie des virus. [Biology of viruses.]* pp. 167. Paris: Masson & Cie. Fr. 850. **3895**

This is the fifth in a series of small books with the general title "Evolution of Science" covering a range that includes the formation of continents, cybernetics, and artificial hibernation. This volume is written by a biologist who is not a specialist in virology, and his aim is to attempt to relate viruses to other living matter and also to non-living things. The title "Aux Confins de la Vie" relates to the position of viruses at the frontier of living things. Chapters deal with the development of the conception of viruses, their physical, chemical and biological characters, and their place among living things. The author's conclusion is that the virus represents the smallest possible autonomous unit of living matter. The text is illustrated by a number of electron photomicrographs from articles by various authors and the reviewer found it both readable and interesting.—E. G. WHITE.

— (1954). **Standard values in nutrition and metabolism. Being the second fascicle of a handbook of biological data.** [Edited by: ALBRITTON, E. C.] pp. xiii+380. Philadelphia (& London): W. B. Saunders Co. **3896**

This is the second volume of a Handbook of Biological Data prepared by the American Institute of Biological Sciences and the National Research Council of the U.S.A., the first volume being "Standard Values in Blood"

[V.B. 24, 1673]. The present volume consists of data presented in the form of 160 tables, each table occupying one or two of the large-size pages, on the following subjects:—inorganic and organic nutrients and their sources; nutrients utilized by animals and plants; daily allowances of each nutrient for man and domestic and laboratory animals; diets for man and animals; culture media for tissues, bacteria and fungi; nutrient and energy values of foodstuffs; functions of nutrients and signs of deficiency and excess; pathways of metabolism and other aspects of metabolism including end-products, metabolism of tissues and organs, and energy exchange.

The sources of this mass of data are given in a bibliography of 100 pages, in which each table is dealt with in turn. There is a subject index, but no author index. The unique style of this series meets the need of packing an enormous amount of information into a relatively small space. Other volumes in course of preparation will deal with data on growth and reproduction, animal and plant physiology, biochemical composition, and toxicology. When completed they will form the Handbook of Biological Data. An abridged Handbook is also in course of preparation. —R.M.

HONEKER, A. [Veterinärarzt a. D. Freudenstadt]. (1954). *Die Krankheiten der Ziege. Heft 4. [Diseases of the goat. Part IV.]* pp. 182+10. Dortmund: Verlag für Kleintierzucht. H. Wellershaus. **3897**

[For reviews of Parts I, II & III, see V.B. 22, 526 & 24, 1614-1615.]

Part IV completes this book on diseases of the goat and, although small in size, is the most comprehensive yet published. The final part deals with diseases of the skin (including the preparation of goat-skins for leather), and of the respiratory, circulatory and urinary systems. According to the author, traumatic reticulitis and pericarditis caused by metallic foreign bodies is by no means rare in goats. There is also a chapter of some sixty pages devoted to bacterial and virus diseases endemic in goats in Germany, and a list of exotic diseases is given. There are seventy-one illustrations, and subject indexes for parts I-IV are included. —R.M.

WELCH, H. (1954). **Principles and practice of antibiotic therapy.** pp. xix+699. New

York: Medical Encyclopedia, Inc.
\$12.00. **3898**

While this was intended to be a revised edition of *Antibiotic therapy* published three years ago it has turned into an entirely new book. The author has had a number of collaborators in covering the wide field implied by the title. The title is generously interpreted. The generally useful antibiotics still number only about a dozen but fifteen are extensively dealt with in Part I. The highly debatable subjects of synergism, antagonism and hormesis (dependence on antibiotics) are discussed.

In Part II the diseases discussed are classified partly according to the causal organism and partly according to the tissue affected. Part III deals with the use of antibiotics in medical specialties.

The usefulness of the book to veterinary readers is limited by the fact that it covers human medicine only. This is counterbalanced to a great extent by the mass of general information and the extensive bibliography. Examples are the chapters on surgical infections and ophthalmology.—G. SLAVIN.

ANON. (1954). *Fundamentals of anesthesia*. Prepared under the Editorial Direction of the Consultant Committee for Revision of Fundamentals of Anesthesia, a publication of the Council on Pharmacy and Chemistry of the American Medical Association. pp. xvi+279. Philadelphia (& London): W. B. Saunders Co. 3rd Edit. 42s. **3899**

This is a sound guide to the general principles of anesthesia. Although the techniques are, of course, those employed in human anaesthesia, the theory is equally applicable to veterinary anaesthesia. Throughout the book the hazards and safety factors are well stressed.—R.M.

WEICHERT, C. K. [Professor of Zoology, University of Cincinnati]. (1954). *Representative chordates. A manual of comparative anatomy*. pp. vii+204. New York (Toronto & London): McGraw-Hill Book Co., Inc. 26s. 6d. **3900**

This book suffers for being a compromise. It is too expensive and randomly illustrated for a dissection guide and yet lacks stimulating discussion as a theoretical text.

The types chosen (*Petromyzon marinus*, *Squalus acanthias*, *Necturus maculosus* and *Felis domestica*) are particularly suitable for colleges in the North American continent, but some might be difficult to obtain in other countries, e.g. Great Britain.

The author follows the fashion in displacing *Amphioxus* in favour of *Petromyzon* as the primitive chordate type discussed.

—A. W. MARRABLE.

DONALDSON, F. (1955). *Milk without tears. The essentials of dairy farming*. pp. 192. London: Faber & Faber Ltd. 16s. **3901**

This is an introduction to the breeding, feeding and management of a dairy herd for the novice, based on the personal experience of the author. There is no special emphasis on problems of animal health, but such as are mentioned are dealt with in a sound manner.—R.M.

CAIN, A. J. [Demonstrator in Animal Taxonomy, University of Oxford.] (1954). *Animal species and their evolution*. pp. ix+11-190. London (& New York, Toronto, Melbourne, Sydney, Cape Town): Hutchinson's University Library. 8s. 6d. **3902**

The aim of this book is to provide an account of the accepted definition of the term "species" and to discuss its importance in modern evolutionary theory.

The author follows the development from the older and simpler meaning of the species as one rank in natural classification based on morphology through geographical variability to the so-called biological definition. This definition, which cannot be applied to all animals, is discussed. Finally an account of geographical speciation and other mechanisms of speciation are given.

The discussions follow a logical plan and no previous knowledge of the subject is assumed.—L. P. JOYNER.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

ALTSCHULE, M. D. (1954). *Physiology in diseases of the heart and lungs*. pp. xv+554. Cambridge, Mass.: Harvard University Press; (London: Geoffrey Cumberlege,

Oxford University Press). Revised edit. \$7.50. 60s.

BEDSON, S. P., DOWNIE, A. W., MACCALLUM,

- F. O. & STUART-HARRIS, C. H. (1955). **Virus and rickettsial diseases.** pp. viii+406. London: Edward Arnold (Publishers) Ltd. 2nd Edit. 30s.
- KITAY, J. I. & ALTSCHULE, M. D. (1954). **The pineal gland. A review of the physiologic literature.** pp. xiv+280. Cambridge, Mass.: Harvard University Press; (London: Geoffrey Cumberlege, Oxford University Press). \$5.00. 40s.
- LEA, D. E. (1955). **Actions of radiations on living cells.** pp. xiv+416. Cambridge: University Press. 2nd Edit. 30s.
- ZIETZSCHMANN, O. & KRÖLLING, O. (1955). **Lehrbuch der Entwicklungsgeschichte der Haustiere. [Embryology of domestic animals.]** pp. xii+482. Berlin & Hamburg: Paul Parey. 2nd revised edit. DM 88.
- (1954). **Annual review of physiology.** Vol. XVI. [Edited by: HALL, V. E., FUHRMAN, F. A. & GIESE, A. C.] pp. ix+545. Stanford, Calif.: Annual Reviews, Inc.; (London: H. K. Lewis & Co., Ltd.).
- (1955). **Annotated bibliography of vitamin E 1952-1954.** Vol. III. [Compiled by: HARRIS, P. L. & KUJAWSKI, W.] pp. 182. New York: The National Vitamin Foundation, Inc. \$3.
- (1955). **Annual review of biochemistry.** Vol. XXIV. [Edited by: LUCK, J. M., LORING, H. S. & MACKINNEY, G.] pp. xvi+805. Stanford, Calif.: Annual Reviews, Inc.; (London: H. K. Lewis & Co., Ltd.) \$7.50.

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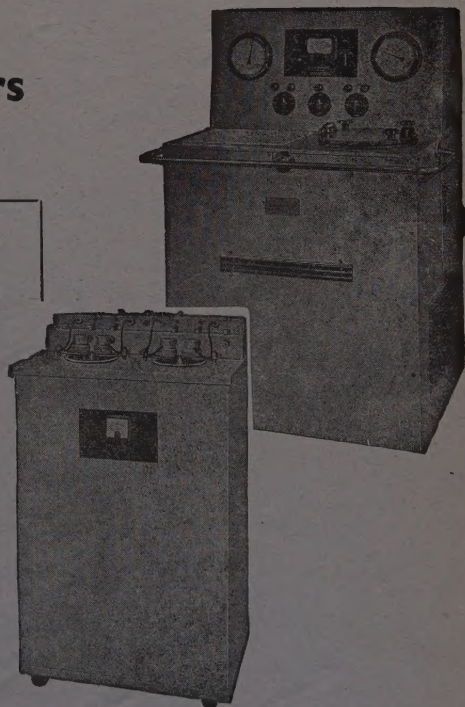
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